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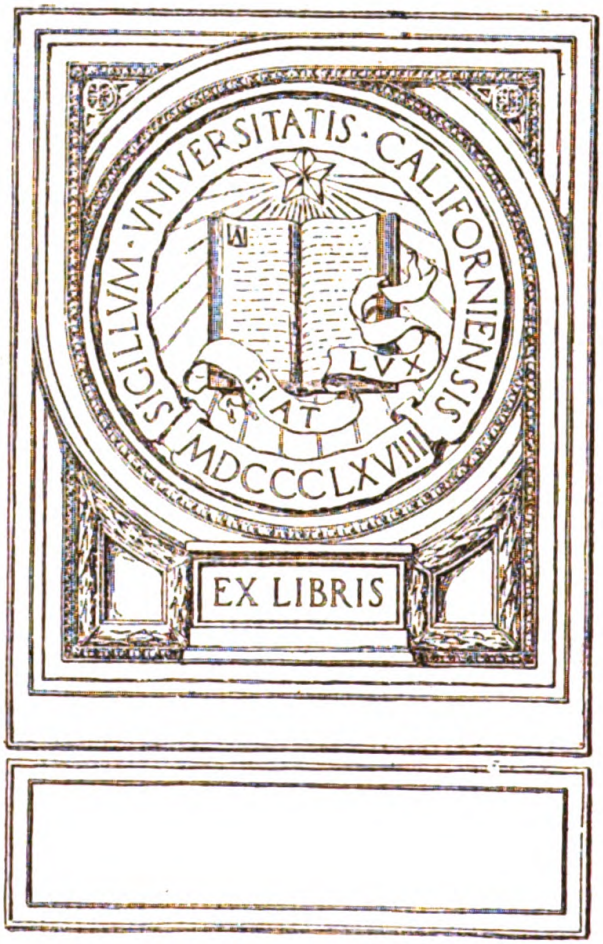
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Review of Neurology & Psychiatry

(Founded by the late Dr Alexander Bruce)

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NEUROLOGY AND PSYCHIATRY

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Review

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Neurology and Psychiatry

Original Articles

STUDIES ON HYSTERIA.

I. Pharyngeal Anæsthesia.

By ARTHUR F. HURST, M.A., M.D. Oxon., F.R.C.P.,

and

J. L. M. SYMNS, M.A., M.D. Cantab.

CHARCOT taught that hysteria manifests itself in two ways—by persistent symptoms or stigmata, of which the patient is unaware, and temporary symptoms, which are obvious to the patient and lead him to seek medical advice. The former were supposed to be present before the latter appeared, and to persist after they had disappeared. Amongst these stigmata the most constant, according to Charcot, were retraction of the field of vision, hemianæsthesia and pharyngeal anæsthesia. His teaching soon became universally adopted, and few books on neurology or general medicine published in the last thirty years fail to mention these stigmata. One of Charcot's most distinguished assistants, Babinski, was the first to throw doubt upon the importance of the stigmata he described. Babinski believes that they are not permanent symptoms at all, but like the more obvious and temporary symptoms, they are produced by suggestion. But instead of being produced by suggestion on the patient's part, they are the result of suggestion on the part of the physician, and the patient is unaware of their presence simply because they do not exist until they have been produced by the observer.

Babinski's views are now almost universally adopted in France,

but to judge from the contemporary literature, Charcot's doctrines are still accepted by British physicians. The evidence brought forward by Babinski in connection with hemianæsthesia and retraction of the field of vision appears to us to be conclusive, and our own observations are in complete agreement with his. The present communication is concerned only with pharyngeal anæsthesia, because Babinski has not published any observations on this subject, but we hope in subsequent papers to discuss cutaneous anæsthesia and the fields of vision in hysteria.

Pharyngeal anæsthesia appears to have been first described as a symptom of hysteria in 1872 by Anstie.[1] "Anæsthesia is very often found when looked for," he wrote, "in one situation where its presence is highly characteristic—the back of the pharynx. If a patient, not taking bromide, can, without retching, let you pass the finger well down to the epiglottis, the diagnosis of hysteria is exceedingly probable." The qualification concerning bromides was thought necessary on account of the observation of Huette in 1850, that the pharynx becomes anæsthetic and the pharyngeal and palatal reflexes disappear in patients taking bromide, an observation which has prompted many physicians to give the drug to patients before examining them with the laryngoscope since this was first suggested in 1867 by Gasselin. It can, however, be of little or no real value, as Krosz found in 1876 that it required an enormous dose, such as between 125 and 150 grains taken at one time, to abolish the pharyngeal reflexes, 100 grains never being sufficient. Our own observations also show that the supposed effect of bromide on the pharynx, which has been copied from book to book, is non-existent, as careful measurement of the pharyngeal excitability in ten cases of epilepsy before receiving bromide and after taking between 45 and 80 grains a day, often for several weeks, in no single case produced any diminution.

The question is not merely of theoretical interest, as during the last few years we have seen many cases diagnosed as hysterical on account of the presence of pharyngeal anæsthesia. One neurotic young woman barely escaped with her life, because the discovery of pharyngeal anæsthesia led her physician to diagnose an attack of abdominal pain as hysterical in origin, although the

[1] F. E. Anstie, *Lancet*, 1872, ii. 842.

delayed operation showed she was suffering from acute appendicitis. The presence of pharyngeal anæsthesia is often mentioned in reports on war neuroses as an indication of their hysterical nature. It is clear, therefore, that the time has come to decide what value can be placed upon this supposed stigma of hysteria.

With the aid of Captain E. A. Peters we first drew up a scale of pharyngeal sensibility, beginning with 0, which indicates complete anæsthesia, and 1, which indicates deficient sensibility and absence of all pharyngeal reflexes, and passing up to 7, which indicates such an extreme degree of hyperæsthesia and such violent reflex spasms that it is almost impossible to examine the throat. After a few days' practice we found our standards were so definite that we always indicated the sensibility in a given case, examined independently, either by the same number or occasionally by numbers differing by one, but never by more. It is not easy to describe the varying reactions, but the following gives an approximate idea of the meaning of each number:—

0. Anæsthetic and no reflex.
1. Hardly felt and no reflex.
2. Felt easily, and very slight reflex.
3. Slight levator reflex.
4. Good levator and slight tensor reflex.
5. Stronger levator and tensor reflex.
6. Very brisk reflex, making laryngoscopic examination very difficult.
7. Maximal reflex, making laryngoscopic examination quite impossible.

We then systematically recorded the sensibility in a large number of men, some healthy, others suffering from a great variety of surgical and medical conditions, and others suffering from definite hysterical symptoms, the nature of which were always finally confirmed by their cure by means of persuasion and suggestion alone. We made our examination without indicating to the patient what object we had in view. He was told to open his mouth and the back of the pharynx and soft palate were then touched with some blunt object, the tongue being depressed when necessary. In the rare cases in which no reflex was produced, the man was asked what he had felt during the examination.

The following tables show the pharyngeal sensibility in

170 individuals with no hysterical symptoms and 53 with hysterical symptoms. A third table shows separately the cases of hysterical aphonia and mutism, which are also included in the second. We have analysed these, because it is often asserted that pharyngeal anæsthesia is particularly well marked in hysterical aphonia, just as hysterical anæsthesia is said—quite erroneously—to occur in the external ear in hysterical deafness, in the eye in hysterical blindness, and so on, assertions which we have found in a considerable experience to have not the slightest foundation in fact. The following quotations from Dr J. A. Ormerod's article on "Hysteria" in Allbutt and Rolleston's "System of Medicine," are typical of what has been written on the subject both by physicians and laryngologists. "It is common knowledge that the fauces in hysterical patients often show great lack of irritability," and "such cases (hysterical aphonia) are often extremely easy to examine with the laryngoscope owing to a lack of irritability in the fauces, which is common in hysteria."

Type of Case.	Degree of Excitability.								Total.
	0	1	2	3	4	5	6	7	
Non-hysterical cases - -	1	14	24	42	53	22	12	2	170
Percentage - - -	0·7	8	14	25	31	13	7	1·3	100
Hysterical cases - - -	0	3	10	14	17	7	6	1	58
Percentage - - -	0	5	18	24	30	12	10	1	100
Hysterical aphonia - -	0	2	2	7	3	5	1	0	20
Hysterical mutism - -	0	0	3	1	4	0	0	0	8
Percentage of aphonics and mutes - -	0	7	18	28	25	18	4	0	100

In several cases of hysterical aphonia and in a few patients with hysterical symptoms it was found that the pharyngeal excitability remained unaltered after a cure had been obtained. The single case in which complete pharyngeal anæsthesia was present was that of a stolid individual, convalescent from neurasthenia caused by simple exhaustion. He had had no hysterical symptoms and there was no history of hysterical manifestations in the past.

These figures show conclusively that pharyngeal sensibility is no more deficient in individuals suffering from hysterical aphonia or other hysterical symptoms, such as paralysis, contractures, fits,

blindness, or deafness, than in individuals who neither are suffering nor have ever suffered in this way, and varies in a similar manner in different people. When care is taken to avoid suggestion, complete pharyngeal anæsthesia is never found, and absence of reflexes, though comparatively rare, is met with in normal people just as often as in patients with hysterical symptoms.

These investigations were all made on soldiers, but one of us carried out a similar investigation in a large number of patients at Guy's Hospital a few years ago, and obtained precisely similar results, although about half of the patients were women and nearly all the hysterical cases were young females. Unfortunately the exact figures have been lost, but they did not differ in any way from the present series.

We may thus conclude that pharyngeal anæsthesia is not a stigma of hysteria, and that when it is habitually found by a given observer, it must be produced in the majority of the cases by involuntary suggestion on his part. As most patients suffering from hysterical symptoms are abnormally suggestible, it is more likely to be found by careless examination in such individuals than in others. As many individuals suffering from organic disease are equally suggestible, pharyngeal anæsthesia may easily be produced in them. Conversely in the not uncommon cases seen under the peculiar conditions of modern warfare, in which hysterical symptoms develop as a result of an overwhelmingly powerful suggestion in men, who are not abnormally suggestible, pharyngeal anæsthesia would not be produced by careless examination, and their hysterical nature might be doubted if any importance were erroneously attributed to pharyngeal anæsthesia as a stigma of hysteria.

It is easy to explain the frequently repeated assertion that laryngoscopic examinations are particularly easy to make in patients with hysterical aphonia. It must be remembered that about 25 per cent. of patients suffering from aphonia or other hysterical symptoms have, like a similar proportion of normal individuals, a comparatively insensitive pharynx (1 or 2 in our scale). The presence of the insensibility would not be remarked upon in a normal individual, but its presence with hysterical symptoms would at once strike an observer, brought up with the idea that pharyngeal anæsthesia is a stigma of hysteria, and the one case confirming this would make more impression on his mind

than the three in which the pharynx was more sensitive. Moreover, our observations show how easily pharyngeal anæsthesia is produced by suggestion, and a few words of encouragement by the observer would be enough in many cases to render a previously sensitive pharynx insensitive, although the observer might have no notion that his words would have such a striking effect. In most individuals the pharyngeal sensibility remains unaltered on repeated examination, but in abnormally suggestible men, whether they are actually suffering from hysterical symptoms or not, we have frequently been able to reduce the sensibility from 3, 4 or 5 to 1 or 2 by direct suggestion.

II. Experimental Observations on the Signs and Symptoms of Malingering, Hysteria, and Organic Nervous Disease.

By ARTHUR F. HURST, M.D., F.R.C.P.

THE physical signs of organic disease which make it possible to distinguish organic from hysterical nervous disorders fall into three groups. The first group consists of phenomena which afford visible evidence of structural changes, the most obvious being optic neuritis and optic atrophy, the presence of abnormal cells in the cerebro-spinal fluid, and muscular atrophy associated with the reaction of degeneration. The second group consists of reflex and other signs, which are entirely beyond voluntary control, such as the Argyll Robertson pupil, irregularity in the outline and inequality of the pupils, nystagmus, inequality or loss of the abdominal reflexes, loss of tendon and bone reflexes, and perhaps true ankle clonus, obtained when the limb is completely relaxed. The third group consists of the signs which could be imitated more or less accurately by anyone who had studied them, but which would never occur as a result of auto-suggestion or be simulated by an ordinary malingerer, as the individual would be unaware that such signs accompanied the disease he believed or pretended that he had. Thus the extensor response to stroking the sole of the foot could easily be simulated by anyone who knew that it occurred, but a man without any medical training would never think that the plantar reflex would alter if his legs were paralysed.

The first two groups afford absolutely conclusive evidence of organic disease. Some of the third group, such as the extensor plantar reflex, are also conclusive, but the value of others varies

with the intelligence and medical knowledge of the individual. Hysterical symptoms, being produced by suggestion, have the characteristics which the patient believes to belong to the symptom, either from his own knowledge or from suggestions which his physician unconsciously makes in the course of his examination. I am confident that a neurologist suffering from hysterical hemiplegia would show an extensor plantar reflex, and all the other signs belonging to the third group of which he was aware, just as he would show them if he were malingering. A correct diagnosis could only be made by the discovery of some constant sign of organic hemiplegia, which was absent owing to its being unknown to him. A man without medical education would show none of these signs, and his hysterical symptoms would be exactly the same as if he were malingering. He would have the symptoms he regarded as a part of the disease, which he believed or pretended he had, together with those which might be unintentionally suggested to him whilst he was being examined.

There are no characteristic signs which accompany hysterical symptoms; the signs of organic disease are absent, but the stigmata which were formerly supposed to be characteristic signs of hysteria are never present until they have been suggested by the observer.

With the assistance of Mr R. Gainsborough I have put these views to the test in an examination of twenty-nine healthy and intelligent individuals, of whom twenty-five were medical students, who had, however, not yet worked in the wards or read any clinical medicine. They were told to pretend that they had been in a railway accident, and that they were attempting to swindle the company by claiming compensation because of paralysis of the *right* arm and leg, which they alleged had resulted. They were to act as well as they could the part of men trying to persuade the medical examiner that they were really suffering from paralysis.

1. We first asked them whether there was anything else of which they complained beside paralysis of the arm and leg. The large majority said they were quite sure there was nothing else, even after being pressed for details. Two, however, said they had noticed "numbness" and one "coldness" of the right arm and leg. One said his hearing was deficient in the right ear; one complained of right-sided headache, and two of generalised

headache. One said he could not wink with the right eye, and one that he noticed something unusual about his tongue. None complained of any disturbance of vision.

These results correspond with what occurs in patients suffering from hysterical paralysis. If they have not previously been examined, they never volunteer that they have any anæsthesia or disturbance in vision, and I have never seen a patient with hysterical hemiplegia who mentioned paralysis of his face or tongue when asked for a complete list of his symptoms.

2. *Anæsthesia.*—(*a*) The following leading question was now asked, "Can you feel as well on your right side as on your left?" Twenty-two out of twenty-seven, including the two who had spontaneously complained of numbness and the one of coldness, said they felt less on the right side than the left. Another said he felt tingling on the right side. The remaining four said they had noticed nothing. This agrees with the results obtained by Adrian and Yelland:[1] a hundred intelligent individuals, who were asked whether sensation would be impaired in a paralysed hand, all replied in the affirmative. The replies to our leading question correspond with the first stage in the production of hysterical anæsthesia, the idea of which first enters the patient's head when he is asked questions on the subject.

(*b*) Cutaneous sensibility was then roughly tested with the following result:—

Complete right hemianæsthesia (Fig. 1) - -	6
Complete right hemianæsthesia except the face (Fig. 2) - - - - -	5
Anæsthesia of the whole paralysed arm and whole leg (Fig. 3) - - - - -	12
Hyperæsthesia of whole paralysed arm and whole leg	1
No anæsthesia - - - - -	4

Seven were asked what the area of anæsthesia would be if only the hand and foot were paralysed: all replied that they would have anæsthesia of the distal part of the limb only, and marked out typical glove and stocking areas at various points up the wrist and forearm and ankle and leg respectively (Fig. 4).

The results of these investigations correspond with the second stage in the production of hysterical anæsthesia. An investigation of cutaneous sensibility in suggestible individuals is very

likely to produce anæsthesia, especially if the way has been prepared by questions on the subject, though this is not an essential preliminary. The area of anæsthesia corresponds with the individual's own ideas, just as in these cases of experimental malingering. Figures 1 to 4 show areas which are generally regarded as typical areas of hysterical anæsthesia; they are really nothing more than the areas which anybody without knowledge of physiology would expect to become anæsthetic when the limbs

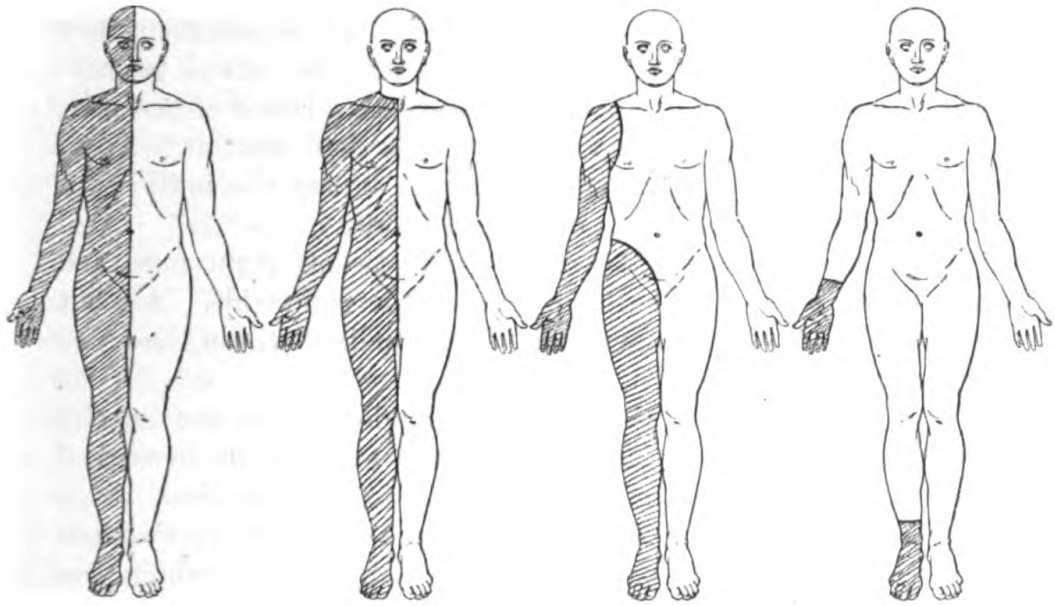


FIG. 1. Complete hemi-anæsthesia.

FIG. 2. Hemianæsthesia except for face.

FIG. 3. Anæsthesia of whole arm and leg.

FIG. 4. Glove and sock anæsthesia.

are paralysed, the same individual variations being seen in these cases of "malingering" as in different cases of hysterical paralysis.

(*c*) In all of the eleven patients who said they had hemi-anæsthesia, the vibration sense on the affected side of the sternum was tested and was said to be lost. Six others were told to pretend they had hemianæsthesia; the vibration sense was lost in them also. Three medical men, who were asked whether they would lose the vibration sensation on the right side of the sternum if they had hemianæsthesia, also answered in the affirmative. This corresponds with the well-known sign, which has sometimes

been regarded as evidence of hysteria, sometimes of malingering, but is really common to both. It is what would be expected to occur unless the question was carefully thought out, when it would be realised that the sternum vibrates as a whole, so that the vibrations produced by the tuning fork would be felt with the normal half of the sternum whether it was placed to the right or left of the middle line.

3. *Vision.*—The results obtained are discussed in a later communication (Studies on Hysteria, No. III.).

4. *Other Special Senses.*—(*a*) On being asked whether they heard as well with the right ear as the left, five out of twenty-seven, including the one who had already complained of deafness, said they heard less well on the right side than the left. All of them had hemianæsthesia, and four were among the individuals who complained of some impairment of vision.

(*b*) The sense of smell was tested in twenty-eight men, and was said by seven to be diminished on the right side. All but one of these had hemianæsthesia, five impaired vision, and five impaired hearing.

The proportion of cases showing impairment in the special senses on the paralysed side is about the same as in hysterical hemiplegia, and the nature of the impairment is identical. It is almost always associated with cutaneous anæsthesia, corresponding with the so-called hysterical stigma of hysteria, in which the hemianæsthesia is accompanied by impairment of the special senses of the same side. In these cases the men only pretended that the special senses were affected after the idea had been suggested in the course of examination, just as in hysteria the symptoms only appear when they are looked for and in this way suggested.

5. *Facial Paralysis.*—(*a*) On being asked the leading question, "Have you noticed any difference between the two sides of your face?" only five out of twenty-seven, including the man who had already said he could not wink properly with the right eye, said that the right side of the face was either weak or stiff.

(*b*) The facial movements were then tested. The five who said that their face was affected, but no others, showed weakness of the right side.

The small proportion of men with facial paralysis, even after leading questions had been asked and an examination made,

corresponds with the rarity with which facial paralysis is found in patients with hysterical hemiplegia.

(*c*) *Platysma Sign.*—According to Babinski,[2] the platysma i not affected in hysterical hemiplegia, though it is always paralysed in organic facial paralysis. I have, however, seen a case of hysterical facial paralysis in which the platysma was also paralysed, and corresponding with this, four out of the five "malingerers" did not contract the platysma on the affected side. Paralysis of the platysma cannot therefore be regarded as a conclusive sign of organic disease, but J. L. M. Symns and I have noticed that it is often easily recognised in patients recovering from organic hemiplegia, when all other evidence of facial paralysis has disappeared, so that it remains a sign of some value in diagnosis.

6. *Paralysis of the Tongue.*—(*a*) On being told to put the tongue out, all of the twenty-six men did so. Four put it out towards the left, one to the right, and twenty-one straight forward. Eleven out of the twenty-one who put it out straight were asked to which side they would expect it to go if the right side of the tongue had been paralysed. Nine said to the right and two to the left.

The small proportion of cases in which there was any deviation corresponds with the rarity of lingual paralysis in hysterical hemiplegia; when it occurs the tongue is sometimes protruded towards the paralysed side as in organic disease, sometimes towards the normal side, the variations being thus similar to what occurred in the experimental malingering.

7. *Babinski's Pronation Sign.*[3]—Babinski's pronation sign was tried in twenty-nine cases. The individual is told to relax his arms so completely that they become quite inert. They are then supported with the palms facing upwards, and are jerked upwards several times. In organic hemiplegia, even before any contractures have developed, the paralysed hand turns whilst in the air so as to face downwards and inwards, whilst the normal one remains in its original position. Pronation did not occur in a single one of the twenty-nine individuals who were tested. As I have only once seen this sign in hysteria, it may be regarded as almost conclusive evidence of organic disease.

8. *Raimiste's Sign.*[4]—In Raimiste's sign the forearm and hand are placed vertically, with the elbow resting in the observer's hand. The hand is then left to itself; in organic hemiplegia it

immediately drops almost to a right angle. It was claimed that this never occurs in hysterical hemiplegia, but I have seen the sign in a most characteristic form in two cases of hysterical hemiplegia, the diagnosis being confirmed in both instances by the immediate recovery which followed treatment by suggestion. In twenty-five out of the twenty-eight men simulating hemiplegia, in whom we tested it, the hand remained erect; in three it dropped. This result corresponds with my experience in hysterical hemiplegia, as I have looked for the sign in about twenty cases, and have found it absent in two. This means that about one individual in ten would expect his hand to drop if the arm were paralysed, and the sign would consequently be present in this proportion of malingerers and of men suffering from hysterical hemiplegia. The sign cannot therefore be regarded as conclusive evidence of organic disease, but it is of some value as a confirmatory sign.

9. *Babinski's Second Sign (Combined Flexion of Thigh and Pelvis).*[5]—I believe that the combined flexion of the thigh and trunk, which I have called Babinski's second sign, is of great value in the diagnosis of organic disease, as it is often present when the plantar reflex is flexor. When a normal individual lies on his back with his arms folded across his chest and his legs widely separated, both legs rise to an equal degree, or in some cases both remain flat on the ground. In organic hemiplegia the thigh on the paralysed side is flexed on the trunk and the heel rises from the ground, whilst the other leg remains immobile or rises later and less high; the same movement often occurs when the patient lies down again with his arms still folded. In hysteria this sign is never obtained; the paralysed leg may remain flat whilst the other rises, this being a very characteristic sign, or the normal reaction may occur, both legs rising or both remaining flat.

The test was tried in twenty-two of the "malingerers," with the following results:—

Right leg higher than the left - - -	1
Left leg higher than the right - - -	9
Both legs remained down - - -	7
Both legs rose equally - - - -	5

The medical student who gave a positive sign explained that he had thought over the test, and it seemed to him that the

paralysed leg ought to rise higher than the other. The average hysterical patient would, however, be very unlikely to come to this conclusion, and as I have never found the sign positive in hysterical paralysis, the unexpected exception in this "malingerer" hardly reduces the value of the test, any more than the discovery of an extensor plantar reflex in a neurologist suffering from hysterical hemiplegia would invalidate Babinski's (first) sign.

The proportion of men in whom the paralysed leg remained flat, compared with those in whom there was no difference between the legs, was about the same as what I have observed in hysterical paralysis, as might have been expected from the similar mental process at the bottom of both. Some individuals would think the paralysed leg should remain flat on the ground, and whether they were pretending to be paralysed or had suggested paralysis to themselves, the leg would remain flat, although this involves a considerable muscular effort in the "paralysed" leg. Other individuals would never think that the process of sitting up would be affected by paralysis of one leg, and their legs would both remain flat or both rise, according to what would have occurred in the absence of paralysis. Dr S. H. Wilkinson, working with me, found that in 46 per cent. of fifty normal men both legs rose on sitting up from the supine position, and in 54 per cent. both legs remained flat on the ground. This corresponds closely to the results observed in the "malingerers," in whom both legs rose in five (41·7 per cent.) and remained flat in seven (58·3 per cent.). One of the seven, who kept both legs down, was asked to repeat the experiment without pretending he was paralysed on the right side: both legs still remained down.

10. *Reflexes.*—The deep and superficial reflexes were tested in a few cases. No abnormality was ever found: thus the knee jerks were tested in fifteen men and were invariably equal, and the plantar reflex was, of course, always flexor.

References.

[1] E. D. Adrian and L. R. Yelland.—*Lancet*, 1917, i., p. 867.
[2] J. Babinski.—*Gaz. des Hôp.*, 1900, lxxviii., p. 521.
[3] J. Babinski.—*Revue Neurol.*, 1907, xv., p. 755.
[4] J. Raimiste.—*Revue Neurol.*, 1909, xvii., p. 1366.
[5] J. Babinski.—*Bull. et Mém. de la Soc. Méd. des Hôp. de Paris*, 1897, xiv., p. 1098.
[6] A. F. Hurst.—*Guy's Hospital Reports*, 1911, lxv., p. 54.

III. Narrow and Spiral Fields of Vision in Hysteria, Malingering, and Neurasthenia.

By A. F. HURST, M.D., F.R.C.P., and J. L. M. SYMNS, M.D.

RETRACTION of the field of vision has long been regarded as the most characteristic "stigma" of hysteria. Janet [1] considered it to be "the emblem of hysterical sensibility in general," and it led him to describe hysteria as a condition due to "retraction of the field of consciousness." Among ophthalmologists de Schweinitz [2] regarded this sign as "a permanent stigma" of hysteria, and believed its value as an aid in diagnosis to be exceedingly great. But Babinski,[3] who, as *chef de clinique*, had watched the development of Charcot's views on hysteria, soon felt himself forced to reject them, as he found none of the so-called stigmata in any of a series of a hundred consecutive cases of hysteria, examined in great detail by methods which excluded the possibility of suggestion. The distinguished French oculist, Morax,[4] a former assistant of Charcot, from whom he learnt the supposed significance of the retracted field of vision, at first continued to find it in almost every patient suffering from hysterical symptoms. But over twenty years ago he became a convert to Babinski's views, and since then he has not seen a single case of hysterical retraction of the field of vision. As it is almost impossible to avoid suggesting a narrow field of vision with the perimeter in highly suggestible patients, he has introduced simpler methods for use with hysterical patients, in which a finger or other familiar object is employed, and although these appear at first to be less accurate, they have the great advantage of making it easy to avoid suggesting abnormalities in the field of vision during the examination.

Like Babinski, we have never seen a patient with hysterical symptoms who spontaneously complained of disabilities resulting from a narrow field of vision, however closely they were cross-examined on the subject. But if a narrow field of vision is produced by testing with the perimeter, the patient may subsequently complain of considerable inconvenience as a result of the cutting off of his peripheral vision.

We have examined numerous soldiers suffering from various war neuroses, who were abnormally suggestible as a result of the stress and strain of active service, some, but not all, of whom were suffering from gross hysterical symptoms, and have never found any retraction of their field of vision until the perimeter

was used. But the perimeter invariably resulted in the suggestion of a narrowed field, however carefully it was used. Moreover, if the examination was continued after the first field was marked out, a spiral field was always obtained (Fig. 5), identical with that which has hitherto been regarded as a stigma of hysteria (*cf.* Fig. 6). We believe that the reason why a spiral field of vision, which is the natural result of continued suggestion, has not been found in a larger proportion of hysterical cases showing a narrow field of vision, is simply because it has not been looked

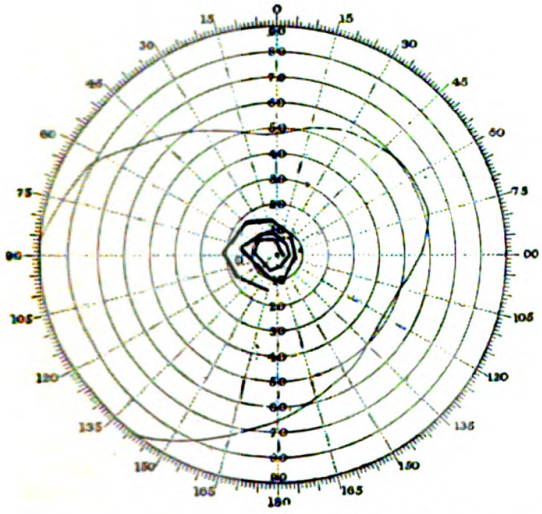


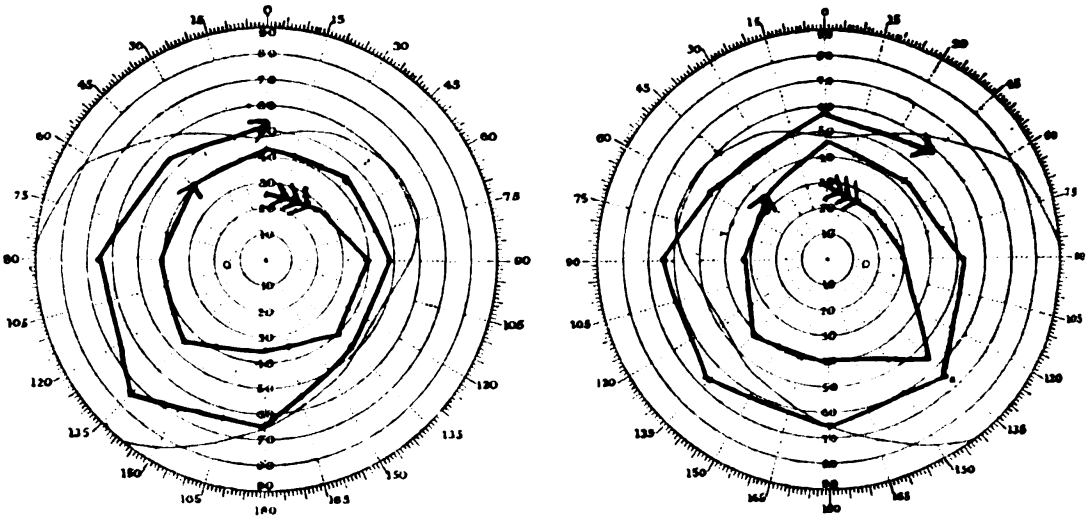
FIG. 5.—Spiral contraction of field of vision in a case of hysterical fits without visual symptoms, in which the finger method, used before the perimeter, showed a normal field.

FIG. 6.—Spiral field of vision (after Purves Stewart).

for, the examiner being content when he has marked the limit of vision a single time in each direction.

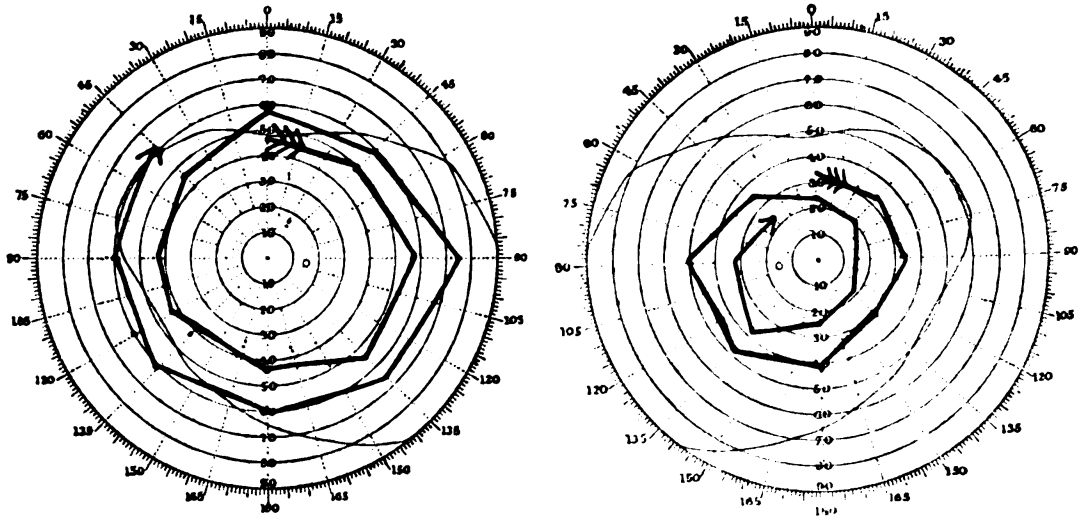
It has generally been taught that a spiral field of vision is a result of fatigue, and it has even been stated that it is more frequently a symptom of neurasthenia rather than of hysteria. We have found that this is not the case, the *inward* spiral, which has hitherto alone been described, being a result of the method employed in using the perimeter. We have found that an *outward* spiral is always obtained instead of an inward one, if the white disc of the perimeter is moved outwards instead of inwards, as is commonly done [5] (Fig. 7). We have in this way often produced an inward spiral for one eye and an outward one for the other (Fig. 8),

or an inward spiral one day and an outward spiral another day with the same eye. There is no question of any special suggestions made by us in our method of using the perimeter, as identical



(*a*) Left eye. Within-outward spiral field. (*b*) Right eye. Within-outward spiral field.

FIG. 7.—Spiral fields in case of hysterical tremor following shell shock.



(*a*) Left eye. Within-outward spiral field. (*b*) Right eye. Without-inward spiral field.

FIG. 8.—Spiral fields in case of hysterical mutism and tremor following shell shock.

results have been obtained by other observers, who marked out the fields of vision for us without knowing the nature of the cases or the object we had in view in obtaining the tracings. Moreover, we have always obtained normal fields in normal individuals whether the disc was moved inwards or outwards.

In the observations on "experimental malingering," described on page 6, we asked the twenty-seven individuals, who were pretending to be paralysed on the right side, whether they could see as well with the right eye as the left: seven replied that they had noticed some impairment of vision in the right eye. On testing the field of vision with a finger no narrowing was observed, and they explained that the deficiency they had spoken about was a blurring or general loss of clearness of vision. But when tested with a perimeter all of the seven showed a narrow field on the

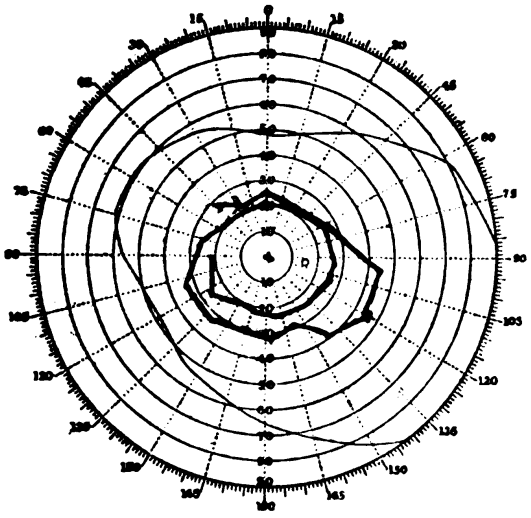


FIG. 9.—Spiral contraction of field of vision in a case of "experimental malingering."

right side, and one had a slighter narrowing on the left side. In the only two cases in which it occurred to us to continue the investigation after the first field had been marked out a spiral was obtained (Fig. 9), which was identical in character with that supposed to be characteristic of hysteria.

REFERENCES.

[1] P. JANET.—"Etat mental des hystériques," 1911.

[2] DE SCHWEINITZ in Posey and Spiller's "The Eye and Nervous System," 1906, p. 625.

[3] J. BABINSKI.—*Semaine médicale*, 1909, xxix., 3.

[4] Quoted by J. BABINSKI and J. FROMENT.—"Hystérie-Pithiatisme," p. 66, Paris, 1917.

[5] In the description of the perimeter given in the four books on ophthalmology, one on neurology and one on clinical methods, which we have consulted, instructions are given to move the disc from without inwards.

IV. The Supposed Association of Hysterical Anæsthesia of the External Ear with Hysterical Deafness.

By A. F. HURST, M.D., F.R.C.P., J. L. M. SYMNS, M.D., and R. GAINSBOROUGH, B.A.

EVER since Briquet[1] in 1859 described the association of hysterical deafness with anæsthesia of the external ear this has been regarded as an almost constant phenomenon. The accepted teaching of neurologists on the question may be gathered from the articles on hysteria by Ormerod in Allbutt and Rolleston's "System of Medicine," and by Oppenheim in his "Lehrbuch der Nervenkrankheiten." Both authors state that hysterical deafness is frequently accompanied by localised anæsthesia of the external ear, unless anæsthesia of the whole side of the body is present. Among aurists, Politzer refers to the same association of symptoms. Ormerod further states that it is a symptom which might be of value in diagnosing hysterical from organic deafness.

In a series of twenty-one soldiers, all suffering from *organic* deafness, due to various causes and of varying degrees of severity, the sensibility of the external ear was tested. The ears were first touched lightly with a finger or some wool, sometimes beginning with the deafer ear, sometimes with the ear which was less deaf or normal; at the same time the patient was asked, "Which side do you feel more distinctly?" A similar comparison was then made between each ear and the cheek on the same side. In twenty out of the twenty-one cases hearing was distinctly better in one ear than the other, and in several it was normal on one side; twelve of the twenty had partial anæsthesia, and three had hyperæsthesia of the affected ear; the better ear was normal in every case. In the single case in which the deafness was equal in the two ears, there was no anæsthesia, but this man did not appreciate that he was deaf at all, a slight degree of deafness having only been discovered when the ears were examined on account of other symptoms. The five cases of asymmetrical deafness, in which no anæsthesia or hyperæsthesia was found at the first examination, were then examined again, but a gross form of suggestion was now employed, the patient being asked the following questions: "You feel my finger less clearly when I

[1] P. Briquet.—"Traité de l'Hysterie," Paris, 1859, p. 295.

touch this ear (the deafer one) than this one, do you not?" and "You feel me touch this ear (the deafer one) less clearly than your cheek, do you not?" Three out of the five patients answered "Yes"; in the remaining two the degree of deafness was very slight. In several of the patients anæsthesia was found to be very well marked, and was associated with complete or partial analgesia. One patient was subsequently seen putting a pin through the lobe of his ear for the amusement of the other men in his ward.

In a case of severe bilateral hysterical deafness examined in the same way both ears were found to be completely anæsthetic. In a second case, in which one ear was totally deaf owing to organic disease, and the other had been totally deaf owing to hysteria, but was now only partially deaf as a result of improvement under treatment by suggestion, the organically deaf ear was found to be anæsthetic, and the hysterically deaf ear was normal, corresponding with the fact that the deafness of the former was much more severe than that of the latter. A gun-layer with severe hysterical deafness on an organic basis, but with no other nervous symptom, who was totally deaf in one ear and almost so in the other, showed no difference between the sensibility of the external ear on the two sides, both being perfectly normal, and attempts to suggest a deficiency completely failed.

It is thus clear that the supposed association of hysterical anæsthesia of the external ear with hysterical deafness is a complete fallacy, and that anæsthesia is likely to occur in a deaf ear if looked for, whether the deafness is organic or hysterical, so long as the individual is sufficiently suggestible and not too well educated. Thus in all the above cases the patients were soldiers who had been on active service, and our experience has shown how remarkably suggestible the majority of worn-out soldiers are, even in the absence of any hysterical or other nervous symptoms. The results obtained with ordinary hospital patients were consequently less striking. Among four adult male civilians, three females, and two boys, all of whom were deaf in one ear or deafer in one ear than the other, only one of the adult males had an anæsthetic external ear. When, however, they were shown two test-tubes, one of which was said to contain hotter water than the other, and were asked to say which side was touched with the hotter tube, eight out of nine said that the deaf (or deafer) ear

felt the heat more than the other ear, although in every case the same tube was actually used for touching both ears.

Ten well-educated individuals, who were asked whether they would expect any difference between the sensibility to touch in the two external ears, if they were deaf on one side only, replied in the negative. On the other hand, seven indifferently educated men all replied in the affirmative. The difference is simply due to the fact that no intelligent man would expect his external ear to be anæsthetic if he were deaf, but a man of less education would act upon the suggestion implied in the question without criticising it. The greater frequency of grotesque hysterical symptoms among hospital than private patients, and among private soldiers than officers, is doubtless due to the greater intelligence and greater development of the critical faculties of the latter.

V. A New Group of Hysterical "Stigmata."

By A. F. HURST, M.D., F.R.C.P., and J. L. M. SYMNS, M.D.

So many neurologists from all over the world come under the commanding influence of Charcot at the Salpetrière, that it is not surprising that his views on hysteria should have been universally adopted with but little modification. The "stigmata" of hysteria, which he described nearly forty years ago, are still accepted by almost all English writers, in spite of the fact that in his own country the criticisms of Babinski have led to the recognition that they are not the permanent symptoms he believed, but are simply the products of suggestion on the part of observers, who have been taught that they will be found if looked for in almost all hysterical patients.

Our observations have led us to agree with Babinski that none of the "stigmata" are present until they have been produced by the observer. If this view is correct, it is clear that a quite different group of stigmata might have been handed down to succeeding generations of neurologists, if Charcot had looked for them in hysterical patients instead of hemianæsthesia, retraction of the field of vision, and pharyngeal anæsthesia. In order to prove this point, we invented three new "stigmata" of hysteria, and then looked for them in patients suffering from hysterical symptoms. There is no special significance in the three stigmata we invented; any others would have done equally well. Our

stigmata are: (1) an outwardly directed spiral field of vision; (2) anæsthesia of the nose; and (3) anæsthesia of the skin round the umbilicus. We have invariably found all three in suggestible patients by simply looking for them without having recourse to any gross method of suggestion. The following series of seven consecutive cases of soldiers suffering from hysterical symptoms examined by one of us (J. L. M. S.) shows the constancy of our new "stigmata," which can thus be regarded as just as characteristic or pathognomonic of hysteria as the stigmata which Charcot's great reputation made classical.

Diagnosis.	Vision by Finger Test.	Perimeter Tracing.	Nasal Sensibility.	Umbilical Sensibility.
1. Hysterical fits	Normal	Narrow; within-outward spiral both eyes	Anæsthetic	Anæsthetic
2. Hysterical deafness	,,	,,	,,	,,
3. Hysterical tremor	,,	,, (Fig. 7)	,,	,,
4. Hysterical hemiplegia	,,	,,	,,	,,
5. Hysterical fits	,,	,,	,,	,,
6. Hysterical stammer	,,	Narrow both eyes Left eye: within-outward spiral Right eye: without-inward spiral	,,	,,
7. Hysterical mutism and tremor	,,	,, (Fig. 8)	,,	,,

Anybody who wishes to test our views need only look for our stigmata and he will find them, provided that the patient is sufficiently suggestible, and if, in using the perimeter, the disc is moved outwards instead of inwards. In a paper published in April 1908,[1] one of us (A. F. H.) had already expressed his belief that "if anybody wished to invent a new 'stigma' for hysteria, he could do so by merely suggesting the same symptom in every patient." In a series of hysterical cases, in which anæsthesia of one side of the body in front had appeared in the course of examination, anæsthesia of the opposite side of the body behind was suggested without difficulty. This "crossed anæsthesia" can be regarded as a stigma of hysteria with as much justification as ordinary hemianæsthesia.

We hope that this *reductio ad absurdum* will result in the disappearance of stigmata from English descriptions of hysteria.

[1] A. F. Hurst, *General Practitioner*, 18th April 1908.

Anæsthesia of the Nose.—Anæsthesia of the nose has been described as a symptom of tabes and of beri-beri. We have not yet made a sufficient number of examinations to express an opinion with regard to tabes. In the case of beri-beri, it must be remembered that most natives are very suggestible, so that the alleged discovery of nasal anæsthesia in a small number of British soldiers from Gallipoli, who were suffering from beri-beri, seemed at first to bring much-needed confirmation to this observation. But we have already pointed out how very suggestible the average soldier is, particularly when exhausted as a result of disease and the stress and strain of fighting in such a place as Gallipoli. Moreover, one of us (A. F. H.) had the opportunity of examining seventeen cases of beri-beri in British soldiers from Gallipoli at Lemnos, and nasal anæsthesia was not found in a single case, great care being taken to avoid the possibility of suggestion. It is therefore very probable that this supposed sign of beri-beri is simply an hysterical symptom produced by suggestion, and superimposed on the symptoms resulting from the organic changes in the peripheral nerves.

"*The Malta Stigma.*"—In the winter of 1916-17 we were puzzled to find that all cases of war neuroses coming from the East *via* Malta had a peculiar psychical response identical with that described below, when their knee jerks were elicited, as we had never before seen this phenomenon, and it was never present in soldiers with otherwise identical symptoms coming from France. We discovered the explanation of this phenomenon, which we were accustomed to call the Malta sign, on reading in the *Journal of the R.A.M.C.* for March 1917 a lecture on "Neurasthenia and Psychasthenia," which had been delivered before a Conference of Medical Officers at Malta in November 1916. The author stated that "in very many cases (of neurasthenia) the elicitation of the knee jerk produces a widespread sensation of discomfort," which may be described as causing "a disagreeable shock felt all over the body, often proceeding up the spine to the back of the head and neck"; it may be "associated with a temporary more or less severe emotional disturbance, fright, tears, sometimes laughter." A description is then given of how the symptom is induced on the left side by leading questions; if it is not present when first looked for on the right side after the unpleasant sensations have appeared with the left knee jerk, the patient "will now feel them on the right side." It

is quite clear from this description that the sign does not exist until its presence has been suggested by the observer, and its constant occurrence in patients coming from Malta after this lecture was given, but in no other patients, is consequently explained. It is, in fact, just as much—and just as little—a stigma of neurasthenia or hysteria as hemianæsthesia and a retracted field of vision on the one hand, and an outwardly directed spiral field of vision and nasal and umbilical anæsthesia on the other.

Abstracts

ANATOMY.

(1) **NOTE ON THE NERVUS TERMINALIS. (Note sur le "nerf terminal.")** A. NICHOLAS, *Bull. de l'Acad. de Méd.*, 1918, lxxix., 19 Mars, p. 250.

NICHOLAS has studied the nervus terminalis in man, and also in many specimens of the chimpanzee and gibbon. Most of its terminal filaments go to that part of the mucosa of the nasal septum which is anterior to the vomero-nasal nerve: a smaller number are intermingled with the filaments of that nerve. The nervus terminalis is present in all vertebrate classes from selachians to man; it is as definite in those forms where Jacobson's vomero-nasal organ is poorly developed as where it is highly developed; it is present equally in osmatic, microsmatic, and anosmatic animals. Nicholas confirms the presence of numerous microscopic ganglia on its course, in addition to a definite "ganglion terminale." He points out that from its great antiquity and its high development in higher animal forms we must decline to look on it as having undergone any reduction in its evolution.

LEONARD J. KIDD.

PSYCHOLOGY.

(2) **PSYCHOLOGICAL PARALLELISMS BETWEEN SPEECH DISORDER AND ORAL ENGLISH.** WALTER B. SWIFT, *Quart. Journ. of Public Speaking*, 1917, iii., July.

A STUDY of speech defect in the varying degrees of psychological content, with corresponding change of brain background, shows

that the psychological content corresponds to the amount of oral output.

A study of a variety of types of speech defect shows that the output varies somewhat according to the type within the class.

Brain structure, psychological content, and oral output thus run pretty constantly parallel between different classes of mental defectives. This shows that in the background we have a pretty firm establishment of a mental type with which we must deal.

In what we term the normal individual, structure, psychological content, and oral output therefore run vaguely parallel in normal types, and are only partially educable, changeable, variable, but are mostly fixed, fatalistic, and firm.

AUTHOR'S ABSTRACT.

CLINICAL NEUROLOGY.

ON A FRESH CASE OF THE SYNDROME OF THE POSTERIOR LACERATE FORAMEN. (Sur un nouveau cas de syndrome du trou déchiré postérieur.) H. ALOIN, *Paris méd.*, 1918, viii., p. 40.

(3)

AN Arab, aged 31, presented paresis of the left superior constrictor of the pharynx (IX.), some hyperæsthesia of the mucosa of the left half of the pharynx and soft palate (X.), and paralysis and atrophy of the soft palate on the left (XI.). In the left supra-tonsillar region there was a scar which probably represented an old specific lesion. Aloin attributes the symptoms to compression of IX., X., and XI. by a gland enlarged as the result of syphilis in the region of the posterior lacerate foramen. Considerable improvement followed treatment by neo-salvarsan.

J. D. ROLLESTON.

SEVERANCE OF THE CHORDA TYMPANI NERVE. IRVING SOBOTKY, *Boston Med. and Surg. Journ.*, 1918, clxxviii., Feb. 14, p. 224.

(4)

THE chorda tympani nerve is very rarely injured during paracentesis of the tympanic membrane. The writer mentions that Schulte, in 1885, reported a case of severance of the chorda tympani during the removal of a polypus from the left middle ear with a sharp curette: a loss of feeling and of taste of two-thirds of the tongue followed. Wolf recorded a case during paracentesis: immediately after the incision, the patient said he had a peculiar absence of sensation on the left side of the tongue. Next day he declared that everything he ate was apparently without salt, and that whatever came in contact with the left side of the tongue tasted the same.

Sobotky's case was a woman, aged 66, who had right acute otitis media. Paracentesis on 6th June 1917: seen again two days later, she complained of inability to taste, and of a numb feeling over the right side of her tongue: a probe examination showed insensibility to touch. Otoscopic examination showed, on the left side, a faint line indicating the chorda tympani nerve situated lower than usual. "It is fair to assume that the nerve on the right side was also lower than normal. This accounts for the injury." Careful clinical tests showed that taste was lost on the anterior half to two-thirds of the right side of the tongue, except, possibly, at the very tip. Taste was present on the right posterior one-third. LEONARD J. KIDD.

(5) **ANÆSTHESIA OF THE SUB-OCCIPITAL NERVE AS A SIGN OF FRACTURE OF THE POSTERIOR ARCH OF THE ATLAS. (Anæsthesia du nerf sous-occipital comme signe de fracture de l'arc postérieur de l'atlas.)** J. A. SICARD and H. ROGER, *Paris méd.*, 1917, vii., p. 540.

A RECORD of three illustrative cases of this condition, which the writers compare with musculo-spiral paralysis after fracture of the middle third of the humerus, paralysis of the ulnar after fracture of the epitrochlea, and anæsthesia of the inferior dental in fracture of the inferior maxilla. J. D. ROLLESTON.

(6) **FRACTURES OF THE SPINE WITH CORD AND ROOT SYMPTOMS.** CHARLES A. ELSBERG, *Annals of Surgery*, 1918, lxxvii., Jan., p. 63.

"IN recent transverse lesions of the cord the fatal outcome is very apt to be hastened by an operation. In crushing injuries of the cervical cord, especially with high fluctuating temperatures, an operation is almost regularly followed, within a few hours or days, by the death of the patient." Elsberg's experience is that no harm will result from a policy of watchful waiting. "Root pains are usually absent in complete lesions, but they may be present, and be so severe that a laminectomy has to be performed for their relief." Elsberg's present standpoint is this: In cervical and dorsal injuries, with transverse cord symptoms, an operation should never be performed until distinct and definite signs of returning sensation and reflexes give proof that part of the transverse diameter of the cord is intact. The surgeon must be guided by the results of a careful physical examination (sensory, motor, reflexes, deep muscle and bone sense, vibratory sense with tuning-fork, and state of muscle tonus), and by stereoscopic X-ray plates.

In crushing injuries of lumbar vertebræ, on the other hand, in which the cauda equina roots are affected, a laminectomy should always be performed as soon as shock has been overcome, and after an X-ray picture has been taken. "There is considerable experimental and clinical evidence that regeneration of divided caudal nerves can occur, and laminectomy and suture of the divided nerve ends should be performed. The injuries of the caudal roots are very apt to be followed by most distressing root neuralgias and by permanent vesical incontinence. Therefore the nerve roots should be freed from all pressure by a wide decompressive laminectomy, and the ends of divided roots should be united by suture. For these reasons the injuries of the cauda equina should be subjected to early operative interference, no matter how 'complete' the symptoms."

In partial lesions of the cord, if the injury has not been severe enough to interfere at all with all of the cord functions, then pressure by dislocated or fractured bone may be contributing very much to the symptoms, and the relief of this pressure by a wide decompressive laminectomy is certain to be of great benefit. The part of the cord that has been irreparably damaged cannot, of course, be benefited, but the compression of a partly crushed cord by bone or blood, or by the intramedullary œdema which follows every cord injury, is certain to cause considerable permanent destruction of nerve fibres. If the cord be found to be œdematous and swollen, Allen's decompressive incision of the cord on its dorsal surface near the posterior median fissure may be tried. Sometimes an intramedullary collection of blood can be removed by aspiration with a fine needle, and thus a secondary gliosis or a progressive hæmatomyelia can be prevented or reduced to a minimum. If none of these conditions just mentioned exist, and if the spinal tissue is not compressed by fractured or dislocated bone, the cord may be angulated or the spinal canal much narrowed. Removal of these abnormal conditions by a wide decompressive laminectomy, by the removal of a projecting spicule of bone from the posterior surface of the body of a vertebra, &c., will prevent secondary softening. In his summing-up of the indications for treatment of fresh fractures of the spine, Elsberg leans to "extreme conservatism" in the patients with the signs and symptoms of a transverse lesion. "The patients with evidences of an incomplete cord lesion should be operated on very quickly after the injury, unless the signs of interference with function are so slight that no justification for surgical therapy exists, the general condition of the patient is so poor that delay is imperative, or unless the coexistence of other severe injuries precludes operative interference." LEONARD J. KIDD.

SPINA BIFIDA. CHARLES A. ELSBERG, *New York Surg. Soc.*, 1917, (7) April 11 (*Annals of Surgery*, 1917, lxvi., Oct., p. 510).

DR ELSBERG showed an infant on whom he had operated over a year ago, at the age of three days, for ruptured spina bifida in mid-thoracic region: recovery: well and strong. He had only once had meningeal infection in these cases in infants. In several of these cases operation was done a week or two after rupture of the sac. He asked members whether their experiences agreed with his that meningeal infection is less apt to occur in infants.

Dr William G. Downes had seen two or three cases, brought into hospital rather late, who had died from meningeal symptoms: in these cases other conditions present had made it unwise to operate.

Dr Charles N. Dowd, in a child whose sac had been ruptured for two days, had obtained excellent closure by the turning in of fascial flaps. He asked whether members had known cases of spina bifida develop into normal children, a possibility doubted by some pediatrists.

Dr Downes had operated on several apparently favourable cases, which were followed, however, by hydrocephalus in a short time.

Dr Arthur L. Fisk had recently seen a child, four months old, with a meningocele high up in the cervical region. He had advised against operation at present, because nature seemed to be obliterating the communication between the spinal canals and the sacs in a safer and simpler manner than by surgical interference. There was no evidence of paralysis, and the child was bright mentally. (Particulars of the case are given.)

Dr Alfred S. Taylor was inclined to think that spina bifida and hydrocephalus are both the result of some fundamental disturbance in the child's formation, and that the "closure of the sac has practically nothing to do with the development of the hydrocephalus, except that it precedes it in time." He had operated on one or two cases where hydrocephalus was already present well developed: this was done merely to make the child easier to take care of mechanically: this was carefully explained to the parents.

Dr Elsberg did not think that ventricular distension after operations for spina bifida is due to the operation, but it is apt to be made worse by the operation. He offered this explanation of the occurrence of hydrocephalus in infants with spina bifida: "It is now known that the circulation of spinal fluid follows a certain definite course. The fluid flows down on the posterior surface of the cord and passes up the anterior surface of the cord.

There is a valve-like arrangement of the arachnoid on the anterior surface near the foramen magnum, which favours the passage of fluid upward, so that in general there is a current of cerebro-spinal fluid downward on the posterior and upward on the anterior surface of the cord. Now, if there exists a spina bifida, there is an obstruction to the passage of the cerebro-spinal fluid past that point, which is probably very often made worse if the patient is operated on. The flow of fluid is obstructed: sooner or later hydrocephalus follows. This obstruction is likely to be increased by the operation. Elsberg always determines whether the absorption from the subarachnoid space is normal by means of the phenolphthalein test. If subarachnoid absorption is normal, then he regards the hydrocephalus as a real obstructive hydrocephalus. Instead of being in the iter or the foramina of Magendie and Luschka, the obstruction is lower down in the spinal canal. In such patients he punctures the corpus callosum. After this procedure he had had a considerable number of patients with spina bifida who were well after five, six, seven, and eight years. For all these reasons he considered the hydrocephalus that follows spina bifida a true obstructive hydrocephalus."

LEONARD J. KIDD.

(8) **THE STATE OF THE ARTERIAL PRESSURE IN SEVERE AND LONG-STANDING INFANTILE SPINAL PALSIES. (État de la pression artérielle dans les paralysies, infantiles spinales anciennes et graves.)** A. SOUQUES, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1917, xxxiii., Oct. 26, p. 1055.

SOUQUES has examined the arterial pressure by Pachon's oscillometer in eighteen cases of infantile spinal palsies. In cases of this nature the arteries of the affected limb or limbs are diminished in calibre, and their coats are thinned. Conclusions:—

1. The arterial pressure is more or less diminished, and sometimes abolished, in severe and long-standing infantile spinal palsies.

2. This diminution is not related to either the patient's age at the onset of, nor to the duration of, the paralysis.

3. It is related to the powerlessness and atrophy of the limb, and it is proportional to their degree.

4. It leads to arterial changes which, when produced by the spinal focus of poliomyelitis, can, in their turn, to a certain extent, by means of ischæmia, tend to increase the atrophy of the paralysed limb.

LEONARD J. KIDD.

FRACTURED BASE OF THE SKULL: THE SUBSEQUENT HISTORY OF A CASE AND ITS TERMINATION 24 YEARS AFTER THE ACCIDENT. J. B. CHRISTOPHERSON and ALBERT J. CHALMERS, *Lancet*, 1917, ii., Sept. 22, p. 458 (1 illust.).

(9)

A MAN, aged 65, one day complained of feeling giddy, and of a little discomfort below the occiput. He had a temperature of 104° F. Two days later he became unconscious and apoplectic, and died on the following morning.

At the autopsy the whole of the convex surface of the brain and the inner surface was found to be invaded by a purulent meningitis. The base was free. An abscess was found under the right frontal lobe with thickening of the dura mater. The organism was in chains, and was both Gram-positive and Gram-negative. It was identified as the *Streptococcus janus crassus.*

It appears that twenty-four years previously the patient had been thrown from his horse and had fractured his skull. He was unconscious for two weeks, and then apparently recovered completely except for loss of taste and smell. The abscess described above was adjacent to the old seat of fracture, and may be assumed to be a consequence of this. It had obviously been of long standing, and being in a "silent portion" of the brain, gave rise to no symptoms until accompanied by meningitis, twenty-four years later.

A. NINIAN BRUCE.

PURPURIC AND CEREBRAL SYMPTOMS OCCURRING IN THE DEFERVESCENCE OF ENGLISH MEASLES. TWO FATAL CASES. T. GODDARD NICHOLSON, *Lancet*, 1917, ii., July 21, p. 87.

(10)

FIVE cases are described.

The *first* case occurred in a boy, aged 17 years. The fever and rash subsided on the fifth day after the first appearance of the severe eruption. The same evening he became suddenly unconscious, was seized with convulsions, was blind, and a coarse purpuric rash appeared on the whole body. Symptoms of cerebral irritation followed, lasting four days, with retention of urine, double Kernig's sign, and head retraction, but clear cerebro-spinal fluid. He appeared well on the nineteenth day, but had no recollection of his attack.

The *second* case occurred in a boy, aged 15 years. The rash was followed by persistent hæmatemesis, delirium, restlessness, and loss of orientation. He recovered rapidly, but a recurrence of the hæmatemesis was followed by death.

The *third* case was a boy, aged 17 years, who became affected by "insanity of location," delirium, and restlessness on the sixth day. It lasted forty-eight hours, when he fell asleep, waking up in a normal condition.

The *fourth* case was a man, aged 39 years, who developed great restlessness, with delusions of persecution, "insanity of location," and insomnia on the fifth day. He seemed to have recovered on the eighth day, but on the nineteenth day acute appendicitis supervened. Operation was followed by recovery.

The *fifth* case was a man, aged 21, in which broncho-pneumonia accompanied the eruption, and was followed by mental symptoms, tremor, paralysis, and death. The cerebro-spinal fluid was normal.

A. NINIAN BRUCE.

TWO CASES OF SIMULATION OF CEREBRO-SPINAL MENINGITIS BY THE NERVOUS COMPLICATIONS OF 914. RECOVERY. (Simulation de méningite cérébro-spinale par les accidents du 914 dans deux cas. Guérison.) J. SABRAZÈS, *Gaz. hebd. des Sci. méd. de Bordeaux*, 1917, xxxiv., p. 134.

(11)

THE first case was a youth, aged 18, sent to the isolation block of a hospital in a comatose state with the diagnosis of cerebro-spinal meningitis. The cerebro-spinal fluid was under hypertension, quite clear and sterile. A history was obtained of two injections of 914, the first (0·45 gm.) a fortnight previously, and the second (0·65 gm.) three days previously. The meningeal symptoms developed a few hours after the last injection. Recovery followed ingestion of adrenalin hydrochloride and injection of camphorated oil.

In the second case, which was at first regarded as one of tuberculous or meningococcal meningitis, the symptoms had developed a few hours after an injection of 0·60 gm. of 914. Recovery took place in a few days. J. D. ROLLESTON.

A CASE OF FULMINANT CEREBRO-SPINAL FEVER WITHOUT MENINGITIS. WM. ST CLAIR SYMMERS, *Brit. Med. Journ.*, 1917, ii., Dec. 15, p. 789.

(12)

A BOY, aged 16, was suddenly taken ill with intense abdominal pain, temperature 96° F., pulse 98, no headache, marked diarrhœa, rigidity of abdominal muscles, repeated vomiting, cyanosis, and collapse. A laparotomy threw no light on his case. He died twenty hours after the appearance of his first symptoms.

The brain and spinal cord appeared normal, but a few drops of the cerebro-spinal fluid, when planted on ascitic agar, furnished very numerous colonies of the meningococcus in pure culture. The course of this case was thus so rapid that the meningeal symptoms and signs remained undeveloped. A. NINIAN BRUCE.

THE SUGAR IN THE CEREBRO-SPINAL FLUID IN ACUTE MENINGITIS. (Le sucre du liquide cephalo-rachidien dans les méningites aiguës.) G. LAROCHE and S. PIGNOT, *Paris méd.*, 1917, vii., p. 293.

(13)

THE writers examined the sugar in the cerebro-spinal fluid in the following conditions: (1) Meningococcal or parameningococcal meningitis; (2) acute non-meningococcal meningitis; (3) meningeal states, *i.e.*, a meningeal syndrome with a normal or slightly modified cerebro-spinal fluid without any bacterial content.

In the first group they found a disappearance or diminution of the sugar at the onset of the disease, a reappearance towards the fourth or fifth day in favourable cases, a disappearance or diminution during a relapse, and a persistence during the occurrence of serum phenomena.

In the second group the results varied, the sugar sometimes disappearing and sometimes persisting. In tuberculous meningitis the disappearance was less complete and sudden than in septic meningitis.

In the third group the normal reduction of Fehling's solution took place.

J. D. ROLLESTON.

A CASE OF PNEUMOCOCCAL MENINGITIS FOLLOWING A VIOLENT CONTUSION OF THE SKULL WITHOUT FRACTURE. (Sur un cas de méningite pneumococcique consécutive à une contusion violente sans fracture.) W. OETTINGER, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, 3 sér., xlii., p. 39.

(14)

A FATAL case in a girl, aged 16, which occurred three days after a fall on her head. The course of the meningitis was extremely rapid, lasting only three days in all. The necropsy showed that both the cerebral and spinal meninges were covered with a thick purulent deposit. There was no evidence of fracture, either of the petrous portion of the temporal bone or of the ethmoid.

J. D. ROLLESTON.

INTRA-SPINAL INJECTIONS OF STERILIZED AIR IN TUBERCULAR MENINGITIS. (Traitement da la méningite tuberculeuse par les injections intra-rachidiennes d'air stérilisé.) FÉLIX RAMOND and FRANCOIS, *Bull. et mem. Soc. méd. Hôp. de Paris*, 1917, xxxiii., 26 Oct., p. 658.

(15)

RAMOND has for two years obtained benefit from intraspinal injections of sterilized air in tubercular affections of the peritoneum, pleura, and testis; and Sicard also in dogs. This treatment is harmless by Ramond's technique: lumbar puncture in decubitus, as much as 40 cubic centimetres of spinal fluid is

removed. 20 c.c. of sterilized air or oxygen is injected as follows: It must be warmed, for, if cold, it dilates suddenly in the spinal canal and so causes compression. The air is aspirated into a Roux's syringe, and traverses a long platinum needle brought to a red heat in order to sterilize and warm it: for injection it should be of the body temperature. When thus prepared it is sent slowly into the spinal canal by the puncture needle left in place. Injection can be repeated after five or six days, for sterilized air; but, for oxygen, it can be continued indefinitely. Definite benefit, but not yet cure, follows these injections. The writers have used smaller doses of air in cases of tubercular meningitis, viz., from 2 to 15 c.c.: the latter dose was borne perfectly and gave an unlooked for benefit. Further, Ramond has shown that injections of sterilized air are perfectly borne when administered by means of puncture of the lateral ventricles. Clearly the writers believe that one day we shall master tubercular meningitis by attacking it at an earlier period than our present diagnostic skill permits.

LEONARD J. KIDD.

TYPHOID MENINGITIS: WITH REPORT OF A CASE. S. BAYNE-
(16) JONES, *Amer. Journ. Med. Sci.*, 1917, cliv., p. 55.

A RECORD of a case of purulent cerebro-spinal meningitis due to *B. typhosus* occurring in the fourth week of a typical case of typhoid fever. The patient, a girl aged 19, died within a few weeks after the onset.

The paper contains summaries from the literature of seventeen cases of serous meningitis and eighteen cases of purulent meningitis. J. D. ROLLESTON.

CEREBRAL ABSCESSES IN PLEURO-PULMONARY SUPPURA-
(17) **TION. (Des abcès cérébraux au cours des suppurations pneumo-pleurales.)** R. GREFFIER, *Thèses de Paris*, 1916-17, No. 118.

GREFFIER traces the history of this condition from Abercrombie (1828) to R. Gilbert (*v. Review*, 1915, xiii., p. 392), and records five cases, of which the following is original. A man, aged 44, developed interlobar empyema and gangrene of the lung. Several ribs were resected and the abscess drained. The patient seemed to be on the highway to recovery, when he suddenly developed left hemiplegia. Craniectomy was performed, and a small abscess was found over the middle portion of the ascending frontal and parietal convolutions. Death from streptococcal septicæmia took place five weeks after the operation. J. D. ROLLESTON.

ON THE RÔLE OF INFECTION IN THE ETIOLOGY OF CEREBRAL HÆMORRHAGE. (18) **(De la part de l'infection dans l'étiologie de l'hémorragie cérébrale.)** E. MAUROIX, *Thèses de Paris*, 1917-18, No. 3.

NUMEROUS cases of cerebral hæmorrhage or softening are caused by very slight infections, whose clinical manifestations are malaise or slight indisposition. The connecting link is the development of acute localised arteritis. The thesis contains the histories of twelve original cases in individuals aged from 37 to 70.

J. D. ROLLESTON.

MULTIPLE SPONTANEOUS INTRA-CEREBRAL HÆMORRHAGES. A CONTRIBUTION TO THE PATHOLOGY OF APOPLEXY. (19) PHYLLIS GREENACRE, *Bull. Johns Hopkins Hosp.*, 1917, xxviii., Feb., p. 86.

THE authoress found that, out of 128 cases of intra-cerebral hæmorrhage, in twenty-four (about 18 per cent.) the brain showed discrete multiple hæmorrhages, none of them being traumatic. The brains were examined because the cause of the coma was in doubt, and trauma had to be excluded. Plurality of hæmorrhages, the feature leading to this report, was represented in three brains by three distinct sites of hæmorrhage, and in the remaining twenty-one by two. The combination of one hæmorrhage into the internal capsule or basal ganglia and one into the pons was most frequent, occurring in fifteen brains (63 per cent.). Of the seven brains (32 per cent.) in which both hæmorrhages were into the cerebral hemispheres, five presented bilateral symmetrical hæmorrhages implicating both internal capsules or basal ganglia. One brain contained hæmorrhages into cerebrum and cerebellum, and one hæmorrhages into cerebellum and pons. In one brain only did the pontine hæmorrhage appear to be primary, a single large clot in the centre of the pons being associated with multiple punctate hæmorrhages in the left internal capsule.

The appearance of the pontine lesions varied greatly. In eight brains they were numerous and small, scattered irregularly throughout the pontine substance. In seven brains, moderately large hæmorrhages occupied the centre of the pons, filling the fourth ventricle and surrounding tissue. Conclusion:—

In the examination of an adequate number of brains containing multiple spontaneous hæmorrhages, pontine hæmorrhage was found secondary to extensive hæmorrhage into the internal capsule and basal ganglia in a majority of cases. The liability of the pontine arteries to secondary rupture is due probably to their anatomical peculiarities, in that they are short, small, terminal

branches given off nearly at right angles from a large trunk, and possibly to a disturbance of blood pressure in the circle of Willis with a back-flow into the posterior branches.

(The paper has a diagram of the blood supply of the brain, a modification of that of Fursac and Rosanoff; and two figures, which illustrate, respectively, traumatic intra-pontine hæmorrhages and spontaneous secondary intra-pontine hæmorrhage.)

LEONARD J. KIDD.

A CASE OF BRAIN TUMOUR SHOWING EXTENSIVE DE-
(20) **STRUCTION, WITH FEW DIAGNOSTIC SYMPTOMS.** HERBERT E. THOMPSON, *Boston Med. and Surg. Journ.*, 1917, clxxvii., Oct. 25, p. 592 (6 figs.).

PATIENT was a man of 70, who three years ago began to wander away from home at times. Quite early in the course of his illness he had loss of sphincter control. There was gradually increasing physical weakness and mental confusion. He became more irritable, and memory failed. He lay in bed a great deal, and often rose at night to look for burglars. He is said to have had a few attacks in which he became pale, rigid, and confused: after these he could sleep for a long time: but no definite convulsions were noticed. He became very untidy in dress. Answers to questions were mostly relevant, but incorrect. Marked dermographia. Wassermann negative (blood serum). No definite paralysis or aphasia: no history of headache. Necropsy revealed a glioma of the brain which had caused extensive cerebral destruction. It involved the anterior portion of the corpus callosum, white matter of left frontal lobe, caudate and lenticular nuclei, and internal capsule. There was only very slight involvement of the right frontal lobe. (It is not mentioned whether apraxia was present or not.)

LEONARD J. KIDD.

THE NASO-FACIAL SYMPATHETIC REFLEX IN FACIAL
(21) **PARALYSIS. (Le réflexe sympathique naso-facial dans la paralysie de la vii^e^ paire.)** C. MIRALLIÉ and P. EMILE-WEIL, *Presse Méd.*, 1918, xxvi., Jan. 31, p. 49.

IRRITATION of the mucous membrane of the nasal cavity by a probe covered with cotton wool gives, in addition to the naso-lachrymal reflex studied many years ago by Spiller and others, a naso-cardiac reflex, described by Emile-Weil and Philippe in 1916; the latter is most commonly a slowing of the cardiac rhythm, sometimes an acceleration, and rarely no change at all (absent naso-cardiac reflex).

The writers now describe certain vasomotor effects of endo-

nasal stimulation, viz., bilateral redness of the face, especially of eyelids, frontal region, cheeks, and conjunctivæ; rarely redness of ears and neck is seen; lachrymation is constant. In complete peripheral facial palsy the nasal mucosa on the side of the palsy is hypo-æsthetic: the naso-facial sympathetic reflex is lost on the paralysed side. With recovery of the palsy the reflex reappears; its degree depends on the degree of recovery. In cases of hemiplegia, both organic and hysterical, the naso-facial reflex is normal on the side of the facial palsy. The afferent path of this reflex is in the trigeminus nerve; its centre is in the bulb; and its centrifugal path is by way of the sympathetic filaments in the facial nerve. In old cases of incompletely recovered facial palsy, where the diagnosis of the seat of the lesion is uncertain, the study of this naso-facial reflex may be of diagnostic value.

LEONARD J. KIDD.

CYSTS OF THE HYPOPHYSIS. A. B. KANAVEL and H. JACKSON, (22) *Surgery, Gynæcology, and Obstetrics*, Jan. 1918.

AFTER removal of cysts of the hypophysis patients are usually mentally sound, but frequently fail to recover sex phenomena and growth. Growth is connected with the function of the anterior lobe, while change in kidney function, adiposity, &c., are caused by the pars intermedia or the posterior lobe. Most of the cysts of the hypophysis arise from vestiges of the pharyngeal pouch.

The writers report three cases of which one died from meningitis. The route chosen for operation was through the nose, by submucous resection of the septum.

The first case presented marked signs of intracranial pressure. Operation performed six years ago. Cyst removed. Recovery. When first seen, male, aged 18, childish voice, sexually immature, eyesight failing, headaches severe with vomiting, marked adiposity; appearance of boy of 12, anæmic, no body hair. After operation there was marked acetonæmia, which disappeared later. Patient was fed for three years on whole gland. No improvement in growth nor sexual maturity. Adiposity lost. Sugar tolerance above normal for two years. Optic atrophy remained stationary.

The second case died from meningitis. Female, aged 21. Illness began eight years ago. Very little growth since then. Two months ago the right eye became dim and finally blind. Never menstruated. Headaches for years. Breasts undeveloped. Height, 51 inches. No axillary hair. Very high sugar tolerance. The operation was not done submucously, and next day there was a paresis of the left external rectus followed by the ordinary signs of meningitis.

The third case was male, aged 18. Weakness of left eye six

weeks previously. Headache soon afterwards. Never had any sexual power. Fairly fat. No hair on chest or axillæ. Testicles very small. High sugar tolerance, 200 grams of sugar producing vomiting, but no glycosuria. Sella enlarged. Cyst removed and found to contain 3ii of bloody fluid. After operation, eye condition improved. Returned twice with recurrence of symptoms, and had two further operations. No recurrence after three years. Histological examination of cyst wall showed no pituitary cells, but structure similar to buccal mucosa.

Most of these tumours are in front of the pituitary itself, and push it backwards, and at the same time exert pressure on the brain and optic tracts. J. K. MILNE DICKIE.

(23) **AN EXCEPTIONAL CASE OF UNILATERAL MYOPATHY, OF PERIPHERAL ONSET, AND WITH PSEUDO-HYPERTROPHY OF NECK MUSCLES. (Note sur un cas exceptionnel de myopathie unilatérale, à début périphérique et avec pseudo-hypertrophie nucale.)** F. NAVILLE, *Schweizer Archiv. für Neurol. und Psychiat.*, 1917, i., p. 338.

IN 1912 Cottin and Naville described a new type of late peripheral myopathy, non-familial, and of very slow course. Naville's present case differs in some particulars from that type. Thus its onset was earlier, it is strictly unilateral (as far as the limits are concerned), and there is a very definite pseudo-hypertrophy of neck muscles which, the writer says, is not at all properly brought out in the figure of a lateral view of the patient. But it conforms to the type in its involvement of the extensors of the fingers before the atrophy of the interossei, thenars, and hypothenars, and in the fact that the peronei escape until long after tibialis anticus and the extensors of the foot and toes. The patient is 30: onset was at 25, after a traumatic orchitis. The course has been very slow, without remissions or pains. The weakness began in the right foot. After six months the extensors of the right fingers and of the muscles of the right side of the neck showed weakness. Examination shows almost total paralysis of the common extensor of the toes, the extensor proprius hallucis, and the tibialis anticus. The anterior peroneus and the extensor brevis digitorum seem less affected. The tibialis posticus, peroneus lateralis, and the calf muscles are strong: the quadriceps and hamstrings are much atrophied and very weak. The small flexors of the toes are a little feeble. Normal adductors and abductors of thigh and glutei. There is absence of both sternomastoids, serrati, and rhomboids, and of the right trapezius and levator anguli scapulæ. The pectorals are affected. Facial muscles normal. The pseudo-hypertrophy of the upper and lateral neck

muscles is so great that at first sight it looked like large lipomata. The left limbs are absolutely unaffected, and no fibrillary contractions have been seen in any muscles. LEONARD J. KIDD.

THE INTRASPINAL TREATMENT OF SYPHILITIC AND PARA-
(24) **SYPHILITIC AFFECTIONS OF THE NERVOUS SYSTEM. (El tratamiento intrarraquideo de las affeciones sifiliticas y parasifiliticas del sistema nervoso.)** G. R. LAFORA, *El Siglo medico*, 1917, lxiv., pp. 226-228, 246-249, 267-269, 289-292.

LAFORA reviews the literature and reports five personal cases (two of old syphilitic myelitis, and three of general paralysis in various stages). His conclusions are as follows:—

1. The combination of intraspinal injections (of mercurialised and salvarsanised serums) with intravenous injections is the ideal method of treatment of syphilitic and parasyphilitic affections of the nervous system.

2. Employed with prudence and in not too advanced cases it is a harmless method.

3. In tabes it is the method of choice, since it can cure cases which are not too advanced, and improve those which have not been affected by previous treatment.

4. In general paralysis it *appears* to cure incipient cases, though this cannot be definitely affirmed until several years after the treatment. In advanced cases it produces more constant and durable remissions than any of the other therapeutic methods hitherto employed. J. D. ROLLESTON.

A CASE OF SYPHILITIC POLYNEURITIS. (Un caso di polineuritis
(25) **sifilitica.)** E. M. VILLAPADIERNA, *El Siglo medico*, 1917, lxiv., p. 906.

THE patient was a woman, aged 37, who, when first seen by the writer, had been suffering from pain and weakness in the legs. Examination showed neuritis of the external and internal popliteal nerves, and a syphilitic ulcer over the ischium. Wassermann reaction positive in the blood and cerebro-spinal fluid. Considerable improvement resulted from specific treatment.

J. D. ROLLESTON.

THE FAMILY OF THE NEUROSYPHILITIC. H. C. SOLOMON, *Mental*
(26) *Hygiene*, ii., Jan., p. 71.

THE families of 247 syphilitics have been examined, of whom 160 families were of syphilitics suffering from general paresis, 72 of syphilitics without definite central nervous system involvement, and 15 with the diagnosis of tabes and cerebro-spinal syphilis.

Out of the 160 general paralytic families, 226 individuals were examined in whom the Wassermann reaction was positive in 23 per cent.

The families of all syphilitics should be thoroughly examined so that treatment may be instituted where indicated.

D. K. HENDERSON.

NERVOUS AFFECTIONS DUE TO LYMPHATIC OBSTRUC-
(27) **TION. (Sur les troubles nerveux par engorgements lymphatiques.)** L. ALQUIER, *Rev. Neurol.*, 1917, Jan., No. 1, p. 8.

SENSORY, motor, and vasomotor disturbances are shown to be frequently due to interference with the lymphatic circulation. The sensory disturbances may show themselves in various localities. Some of the cases resemble sciatica, but pain on pressure in these cases is more marked in the muscles than over the nerves, and on palpation swollen lymphatics may be felt around the sacro-iliac joint. Often slight wounds of the buttock or of the posterior surface of the thigh will present such symptoms, but in these cases the tendon reflexes are normal, and the electrical reactions are unchanged. Other cases suffering from occipital headache spreading on either side into the temporal region are often due to the engorgement of the lymphatics in the muscles of the neck with contracture of the muscles. Sometimes where there is intense pain in the feet, small, hard, very painful nodes may be felt in the bony insertions of the muscles, or around the head of the metatarsal bones. Painful cicatrices occurring after wounds and certain types of parasthesias are due to the same causes. In all of these conditions the symptoms disappear after massage.

The motor affections consist of contracture and atrophy of the muscles; and the vasomotor affections consist either of œdema similar to the white swelling seen in arthritic cases, or of a purple, cold œdema seen especially in Volkman's syndrome.

D. K. HENDERSON.

THE EXPERIMENT OF THE "HOLE IN THE HAND" AS A
(28) **TEST FOR BINOCULAR VISION. (L'expérience du "trou dans la main" criterium de la vision binoculaire.)** A. CANTONNET, *Presse Médicale*, 1917, xxv., No. 67, Dec. 3, p. 686 (2 figs.).

CANTONNET has applied to ophthalmology an experiment that is often performed to amuse children. A piece of paper, a foot in length, is rolled up and held in front of the right eye. The left hand is held, with the ulnar border touching the side of the tube of paper, at a distance of 9 inches from the eyes. A person who has normal binocular vision will, on looking at a distant

object, see it by the right eye through the tube; and will, at the same time, see a hole in the middle of the left palm; through this hole the left eye will see part of the distant object seen by the right eye. If binocular vision be imperfect, he will see the hole to the right, left, up, or down, according as there is a tendency to convergence, divergence, or vertical deviation of the left eye either above or below the horizontal plane.

LEONARD J. KIDD.

A CASE OF IRITIS AND OPTIC NEURITIS FOLLOWING TONSILLITIS. (29) I. SOBOTKY, *Boston Med. and Surg. Journ.*, 1917, clxxvi., p. 806.

A WOMAN, aged 21, who was subject to yearly attacks of tonsillitis, developed acute follicular tonsillitis, followed a week later by inflammation of both eyes. Examination showed the presence of iritis of the right eye, and double optic neuritis. Wassermann reaction negative in the blood and cerebro-spinal fluid. Tonsillectomy was performed, and recovery took place in a few months.

J. D. ROLLESTON.

ACUTE OTITIS MEDIA WITH PARALYSIS OF THE SIXTH NERVE (GRADENIGO SYMPTOM-COMPLEX). (30) DOUGLAS GUTHRIE, *Edin. Med. Journ.*, July 1917, p. 15.

THE writer describes a case of this unusual complication and gives a synopsis of the literature on the subject.

A Canadian soldier, aged 21, was admitted to hospital, suffering from acute otitis media. The right ear had been discharging for three weeks, and there was severe and persistent pain in the ear and temporal region. There was a history of old-standing chronic otitis with occasional acute exacerbations.

The right drum had a large perforation from which small polypi were protruding. The discharge was muco-purulent and non-fœtid. There was no mastoid tenderness or any sign suggestive of labyrinthitis.

On the day after admission the patient complained of double vision, and was found to have a complete paralysis of the sixth nerve, as is shown in the photograph.

As the severe pain continued, a radical mastoid operation was performed. The bone was distinctly "pneumatic" in structure, and most of the cells contained sticky muco-pus. The dura was exposed and separated a little from the petrous bone, but no pus was here encountered.

Though much troubled by hiccough for a few days, the patient made good progress, and the mastoid cavity became dry and clean.

The ocular paralysis improved so that full "abduction" of the right eye was possible two months after the operation.

A year later the patient reported that since his discharge from the army he had been able to do light work on a farm.

Discussing the case, the writer states that otogenic paralysis of the sixth cranial nerve was first investigated by Gradenigo, who recorded a number of cases of "acute middle-ear suppuration accompanied by intense unilateral headache and paralysis of the abducent nerve."

The pathology of the condition is interesting, though it has been worked out in only a few cases.

Gradenigo, who collected 53 cases, describes 5 which were examined post mortem. An abscess at the petrous apex was found in 3 cases; in the remaining 2 there was a carious focus in the same situation. Gradenigo suggests that the spread of infection takes place from the tympanum along the cells surrounding the Eustachian tube towards the apex of the petrous temporal. The sixth nerve, as it traverses the space of Dorello, is liable to be pressed upon and involved in any suppuration affecting the apical cells of the petrous pyramid.

Dorello's space is the triangular osseo-fibrous canal bounded by the petrous apex, the posterior clinoid process, and the petro-sphenoidal ligament.

Wilkinson has described a case of Gradenigo symptom-complex which proved fatal from meningitis. Post mortem revealed an abscess cavity at the apex of the petrous pyramid, and the track of infection was clearly demonstrable. Wilkinson thinks that such an abscess might be drained by stripping the dura from the bone.

Barr has described two cases in which there was also optic neuritis, but which both recovered completely.

Two cases, in children, were seen by M'Nab, and in each case recovery followed the mastoid operation.

Mayo Collier and Mounier have had cases in which the paralysis was bilateral, while Furet has observed a contralateral case. AUTHOR'S ABSTRACT.

TRAUMATIC HYSTERIA. C. P. OBERNDORF, *New York Med. Journ.*, (31) 1917, cvi., Nov. 10, p. 874.

OBERNDORF discusses the nature of traumatic hysteria and records cases in illustration of his views. His conclusions are the following:—

1. Traumatic neurosis is not primarily dependent on litigation.
2. All hysterias are dependent to a great extent on traumata,

psychical rather than physical. The mental mechanism in litigious cases probably parallels the non-litigious ones.

3. The constitutional make-up of the patient, more specifically his unconscious mental equipment, is the most important factor determining the development of hysteria.

4. All hysterics are unconsciously attempting to achieve something through their illness, and until that aim is brought clearly into consciousness, or some substitute for it provided them, there is little hope for permanent cure.

LEONARD J. KIDD.

ON THE MECHANISM OF CONVULSIVE PHENOMENA AND ALLIED SYMPTOMS. (32) C. MACFIE CAMPBELL, *Johns Hop. Hosp. Bulletin*, 1917, Oct., p. 318.

CAMPBELL shows how, in studying "Convulsive Phenomena and Allied Symptoms," it is best to get away from the habit of applying a formal neurological viewpoint, and rather to think in terms of the modes of reaction of living organisms. He gives examples of a series of illustrative cases, and shows how in each case the problem is: "How far can we deal adequately with the symptoms in merely physiological terms? How far must we take into consideration the instinctive and emotional patterns of reaction? To what extent are the complex factors of the subconscious and the conscious life involved in the development of the symptoms?" Treatment must take into consideration the formation of habits, the regulation and assimilation of the instinctive and emotional life, the forces involved in the interplay between the subconscious and conscious realms. D. K. HENDERSON.

A CONTRIBUTION TO THE CLINICAL STUDY OF MIGRAINE. (33) **(Contribution à l'étude clinique de la migraine.)** L. BABONNEIX and H. DAVID, *Journ. de Méd. e. d. Chirurg. Pratiques*, 1918, lxxxix., 10 Mars, p. 174.

THE writers claim that meningeal reactions play a part in the symptomatology of ordinary migraine, and also the ophthalmic variety: there is in migraine a hypertension of the cerebro-spinal fluid: "this explains the good results which lumbar puncture gives in some cases" (J. A. Sicard). The writers draw special attention to the aggravation of the pain of migraine by coughing or sneezing, either spontaneous or volitional. They think that at each shock of a cough or sneeze the cerebro-spinal fluid, in a state of momentary hypertension, disturbs the sensory trigeminus root, and so provokes a pain which is propagated to its meningeal terminations. They regard the pain of migraine as due, not merely to a neuralgia, but to a true radiculalgia of the trigeminus nerve. And this radiculalgia

is itself dependent on hypertension of the cerebro-spinal fluid, which is sometimes relieved almost instantaneously by lumbar puncture. LEONARD J. KIDD.

PARALYSIS AGITANS AND MYOPATHIC DYSTROPHY OCCURRING IN UNCLE AND NEPHEW, WITH EVIDENCES OF GLANDULAR DYSCRASIA IN THE LATTER. M. OSNATO, *Boston Med. and Surg. Journ.*, 1917, clxxviii., p. 123.

(34)

THE uncle, who was aged 80, had been perfectly well until the age of 72, when the first symptom of paralysis agitans commenced. The nephew, who was aged 39, showed a generalised muscular dystrophy, and had always been considered dwarfish. A skiagram showed enlargement of the sella turcica. Tests showed a very high degree of sugar tolerance.

He had suffered from childhood from periodical headaches. Pubic hair had appeared at an early age, and his genitals had become well developed when he was quite young, but he had never had any sexual desire, though about half a dozen times in his life he had erections with emissions without masturbation.

J. D. ROLLESTON.

SUPRARENAL INSUFFICIENCY AND ADRENALIN. CHOLERA AND SEA-SICKNESS. (Insuffisance surrénale et adrénaline. Choléra et mal de mer.) NAAMÉ, *Paris méd.*, 1917, vii., p. 415.

(35)

CHOLERA, according to Naamé, is only one of the syndromes of suprarenal insufficiency such as is found in other infectious diseases, *e.g.*, diphtheria, typhoid fever, or dysentery. In such cases adrenalin is the treatment indicated. Naamé gives the following pathogeny of sea-sickness: The rolling of the waves imparts oscillations to the boat, which oscillations produce, by means of the solar plexus, an inhibitory action on the suprarenal glands. This gives rise to a reflex suprarenal insufficiency, which is manifested by the following symptoms: vomiting, constipation or diarrhœa, asthenia, arterial hypotension, &c. This theory explains the immediate cessation of the symptoms on landing, and the rarity of sea-sickness in children owing to the equilibrium of their glandular secretions, the small size of their body, on which the rolling movement has little effect, and the tonicity of their abdominal walls. For this reason a belt is necessary in adults. Sedatives have no effect on sea-sickness. Adrenalin alone is efficacious. The dose should be large, 5 to 6 mgm., given three times, with an interval of half an hour to an hour between them, on an empty stomach.

Railway sickness, which is merely a variety of sea-sickness, yields to a small dose of adrenalin. J. D. ROLLESTON.

POST-OPERATIVE TETANUS. Moses Behrend, *New York Med.* (36) *Journ.*, 1918, cvii., Feb. 2, p. 199.

"Post-operative tetanus occurs usually after aseptic operations. It is lethal in the great majority of cases." Its symptoms are those of tetanus acquired in other ways: in eight to fourteen days after an operation, stiffness of lower jaw: this increases in intensity, and convulsions soon follow. Pizzini found that 5 per cent. of normal men harbour the tetanus bacilli or its spores in the active state in the intestinal canal, and the percentage of contamination is increased in hostlers, stablemen, dairymen, and drivers. Raw vegetables and raw fruits often contain tetanus bacilli. Behrend's conclusions are:—

1. The individual may possess an inherent tendency or predisposition to tetanus.

2. Germs may be introduced before operation in a susceptible person and lie dormant, but a stimulus is required to render them active.

3. Infection is by accidental contact with germ-laden soil before or after operation.

4. Catgut is probably excluded as a causative factor.

5. Water may be a cause of infection. Five cases reported by Hirst followed douches after the puerperium and abortions.

6. Raw vegetables should not be eaten before operation.

7. While pre-operative purgation is not essential, as shown by the large number of operations performed without it, still, on account of the susceptibility of some persons to the tetanus bacilli, laxatives ought to be used before operation, except in emergency cases.

8. Special care should be taken in the preparation of farmers, stablemen, &c., for operation. An immunizing dose of tetanus antitoxin should be given in these cases, as has been recommended.

9. Most of the cases of post-operative tetanus have followed gynæcological operations.

10. Further study should be made of the similarity of the disease of sheep called "louping ill," or "trembling" (Hamilton), and tetanus.

Leonard J. Kidd.

PSYCHIATRY.

KORSAKOW'S POLYNEURITIC PSYCHOSIS IN PREGNANCY. (37) A. Frigerio, *Riv. di Patol. nerv. e ment.*, 1917, xxii., p. 441.

A woman, aged 36, without any hereditary taint or noteworthy morbid antecedents, except uncontrollable vomiting in her first and eighth pregnancies, presented in the third month of her ninth pregnancy the symptoms of uncontrollable vomiting: the

uterus was emptied without any immediate complications, but three days after the operation psychical disturbances appeared characterised by defective memory of recent events. In a fortnight's time signs of neuritis (formication, paresis and atrophy) appeared in the upper limbs, and dyspnœal attacks developed; a month after the onset of the psychical disturbance, when the latter was beginning to subside, paresis of the lower limbs developed. After an illness of about three months complete recovery took place.

There are 17 cases of Korsakow's syndrome in literature without any history of alcoholism or any other infective or toxic factor except pregnancy. In 5 cases the pregnancy was normal, in 8 it was accompanied by uncontrollable vomiting, in 4 there was death and maceration of the fœtus *in utero*, in 2 there were febrile complications, in 10 the morbid symptoms arose before the emptying of the uterus, and in 7 at a more or less distant period after that event.

The result *quoad vitam* was good in 15 cases, in 11 there was complete disappearance of psychical and somatic disturbances, of the psychical phenomena alone in 2, and considerable improvement in the rest. The duration of the disease varied, but was always several months (five to fifteen). J. D. ROLLESTON.

CERTAIN OF THE CLINICAL ASPECTS OF "LATE KATATONIA,"
(38) **WITH A REPORT OF CASES.** EDWARD A. STRECKER, *Amer. Journ. Insan.*, 1917, Oct., No. 2, p. 185.

URSTEIN regards "late katatonia" as a disease process due to auto-intoxication, and the one feature regarded as unique is the somatic-nihilistic delusion. Many of the circular and agitated depressions, and practically all pre-senile states, are embraced by Urstein's classification. Kraepelin has found cases of "late katatonia" in dementia præcox which cannot be separated from the earlier forms, but he has never found "late katatonia" occurring in involutional or pre-senile cases. Bleuler feels that cases of "late katatonia" are simply recurrences of an earlier condition which had become quiescent.

Out of 117 patients, the onset of whose psychosis was in the fifth, sixth, or seventh decade, 25 revealed katatonic-like phenomena: 17 of these occurred in the fifth, 5 in the sixth, and 3 in the seventh decade. Three of these cases were diagnosed as belonging to the manic-depressive group, nine to the involutional depression group, five to the dementia-præcox group, and eight were not classified. In analysing his cases Strecker comes to the conclusion that the clinical evidence of true katatonia in the late psychoses is not distinctive enough to justify the

assumption of a late katatonic disease process. Some of the factors which may give a katatonic colouring to the insanities of the climacteric-pre-senile epoch are the relative inelasticity of affect-life, the tendency to irritability, the confusion of consciousness due to epochal metabolic disturbances, and regressive circulatory changes. D. K. HENDERSON.

A STUDY OF SELF-ACCUSATION. EARL D. BOND, *Amer. Journ.*
(39) *Insan.*, 1917, Oct., No. 2, p. 169.

OUT of eighty consecutive admissions to the Woman's Department of the Pennsylvania Hospital, eighteen showed repeated self-accusation, and four others showed it in isolated instances. There were more than this total of cases showing depression without self-accusation. This symptom of self-accusation develops in conscientious, responsibility-taking persons who are predisposed to insanity by heredity; the manifest-content is sexual or trivial, often expressed in symbols; it may represent not only a rationalisation of a mood or instinct, but a continuing wish not yet reconciled to the total self. D. K. HENDERSON.

A CASE OF PELLAGRA IN CENTRAL ASYLUM. WILLIAM F.
(40) SAMUELS, *Journ. Ment. Sci.*, 1917, Oct., p. 578.

A CASE of pellagra of two years' duration in a Chinee, and the author believes the first case of such described in the Federated Malay States. The mental and physical symptoms were typical of the disease, though the nervous symptoms (apart from the mental) appear to have been negative.

H. DE M. ALEXANDER.

DEVELOPMENT OF THE PERSONALITY. E. G. CONKLIN, *Amer.*
(41) *Journ. Insan.*, 1917, Oct., No. 2, p. 123.

AN introductory address delivered at the seventy-third annual meeting of the American Medico-Psychological Association. The subject is dealt with in general terms. Heredity and environment are the causes of development, and of these heredity is the more important, as it determines all the possibilities of development and all its main results, whereas environment serves chiefly to modify these results. The development of the human personality is the most complex thing in all the world, and in regard to it "we are as children in the morning of time."

D. K. HENDERSON.

UNEMPLOYMENT AND PERSONALITY—A STUDY OF PSYCHO-
(42) **PATHIC CASES.** H. M. ADLER, *Mental Hygiene*, 1917, i., Jan., p. 16.

AN attempt has been made to analyse, on the basis of their personalities, a selected number of persons for whom unemployment is a serious problem. The idea was to get an understanding of the kind of individual who was likely to get into economic difficulties, the particular kind of difficulty, and the situation in which it would be most apt to occur. The present report is based on 100 cases of unemployment who had been admitted as patients into the Psychopathic Hospital. Only males from 25 to 55 years were included. These 100 cases have been arranged under three divisions: (1) The paranoid personality. Under this heading are grouped all individuals who have shown by their conduct that their reaction to the world is ego-centric; 43 cases, or almost half, belong to this group. (2) The inadequate personality. These are cases who in their conduct show a lack of judgment or intelligence. Under this heading are included the feeble-minded and those suffering from deteriorating diseases other than manic-depressive insanity and the paranoid psychoses. There are 35 such cases. (3) The emotionally unstable group. This group comprises 22 cases.

In each case the patient was asked his reason for leaving his job, and then the employer's statement was taken. In the paranoid group the reasons correspond in 33 per cent., in the inadequate group in 31 per cent., and in the emotionally unstable group in 37 per cent. The emotionally unstable averaged 50 months to each job, the inadequate 24 months, and the paranoid 20 months.

D. K. HENDERSON.

MENTAL ADAPTATION. F. L. WELLS, *Mental Hygiene*, 1917, i., Jan.,
(43) p. 60.

IN this interesting paper the author points out how life depends upon adapted behaviour. In the animal world adaptations are of a threefold nature: the search for food, the look-out for enemies, and the continuation of the species. To whatever extent the animal reacts in ways achieving these ends, we speak of that organism's behaviour as in good adaptation to its environment, or as well-balanced. The right thing being defined, the best adaptation lies in the most effective doing of it. Numerous examples and instances are given of both good and bad adjustments. For instance, in face of something which they cannot attain, certain people will deny its existence, or else minimise the value of the thing wished for. That is a bad type of adaptation, because the false attitude makes it harder to meet any future situation in

which the wish could, and should, be realised. A second type of adaptation concedes the value of the end desired, but lacking the strength to attain it, meets it by imagining a realisation. The day-dream is the universal example of this, and it is also seen in mental disorders in "wish-fulfilling deliria." The free imagination of wished-for things often fires our ambitions, and makes us strive the harder. Another mode of adaptation is to rationalise, *i.e.*, to assign a reason for our acts satisfactory to ourselves. This method is applied not only to our acts, but also to our opinions and points of view. We manufacture reasons for our likes and dislikes, and even more for our approvals and disapprovals. The greater share of human happiness depends on the fitness of sexual adaptations; the final normal adjustment of this trend is made in marriage, where a man and woman administer a household and rear children. The course to an adequate mental adaptation is sometimes stormy, but it is far less devious than the paths by which people attempt to escape it. D. K. HENDERSON.

A THEORY OF CONDUCT. ALAN M'DOUGALL, *Journ. Ment. Sci.*, 1917, (44) Oct., p. 565.

IN the beginning every creature was a patriarch. Association with other creatures brought the acquirement of tribal instincts and intellect, though the latter often glorified the individual self at the expense of the patriarchal self. The patriarchal appetites are only vigorous during adult life; during infancy and senility the patriarch is feeble, the individual rules.

A normal appetite may be replaced temporarily or permanently by an exaggeration, diminution, absence, perversion of itself, or by a substitute appetite; nevertheless, conduct is the consequence of appetites evolved to procure the creature immortality on earth through progeny; and, normally, that peace which the world cannot give comes only with the triumph of the patriarch over the individual.

A numerous number of abnormal people, interesting, yet occupying diverse niches in the social scale, are to be seen daily everywhere, in whom, throughout infancy, manhood, and senility, the individual predominates; the patriarch is feeble or non-existent. H. DE M. ALEXANDER.

ON PSYCHO-SENSORY AND PSYCHO-MOTOR DISTURBANCES. (45) G. H. MONRAD-KROHN, *Journ. Ment. Sci.*, 1917, Oct., p. 555.

THE whole chapter of aphasia and allied conditions is to-day marred by lack of exact clinical terms and an abundance of semi-scientific terms, mixing clinical facts and localisation hypothesis

into a chaos, not only causing confusion, but barring further progress of clinical research in this department of neurology.

The author suggests the following system of tests for psycho-motor and psycho-sensory disturbances, comprised in one logical system, which allows one to get a complete picture of each case :—

I. *Perception as evidenced by spoken response* :—

A. Auditory perception—

(*a*) Of words—

"How old are you ?"
"What is your name ?" &c.

(*b*) Of inarticulate sounds. The patient is asked to shut his eyes and tell what he hears—

Rattling of keys.
Whistling.
Imitation of various animals.
Ability to recognise a melody played on the piano, &c.

B. Visual perception—

(*a*) Of words. Various questions are put to him in writing—

"When were you born ?" &c.

He is asked to relate in his own words the contents of some printed matter.

(*b*) Of pictures. He is asked to explain pictures shown to him, or to diagnose the nature of an unfinished sketch.

(*c*) Of objects. He is asked to name articles (pencil, cigar, &c.) shown to him.

C. Tactile perception—

The patient is told to shut his eyes, and to name objects placed in either of his hands.

D. Olfactory perception—

To name smells applied to his nostrils (compare the ordinary neurological test for taste).

II. *Perception as evidenced by written response* :—

The patient is asked to *answer in writing* to the same or similar questions as under I.

III. *Perception as evidenced by practical response* (*actions, demonstrations, mimicry*) :—

(*a*) *Auditory perception*—
"Lift your hand up."
"Button your coat."
"Take the pencil and draw a house."
"Show how you would use a key."
"Look angry" (mimicry).

(*b*) *Visual perception*—
"Do what I write to you"—similar to I.

(*c*) *Tactile and visual perception*—
"How do you use this?"—a key, tape-measure, strike a match, &c.

Let the patient—
Repeat words and copy writing (automatic actions without any psychic content).
Transcribe printed matter into written language.
Read aloud.
Write to dictation (semi-automatic actions).

The above scheme is illustrated diagrammatically with the terms proposed by the author, *e.g.*, a case of sensory aphasia exhibiting no spoken response to perception of written language, no written response to perception of spoken language, and faulty spoken response both to perception of written language and to stereognostic perception would be described as exhibiting phaso-phasic, phaso-graphic, and phaso-practic disconnection, as well as lexo-phasic and stereo-phasic disturbance.

H. DE M. ALEXANDER.

MATERIALISM AND SPIRITUALISM. HENRY MAUDSLEY, *Journ.* (46) *Ment. Sci.*, 1917, Oct., p. 494.

THE author endeavours to answer the twofold question: firstly, whether the doctrine of materialism is defunct, as spiritualists believe and persuade themselves it is, or only dormant; secondly, whether the doctrine of spiritualism, when closely examined and clarified, differs essentially from materialism. The paper does not lend itself to abstraction. H. DE M. ALEXANDER.

INSANITY FROM THE PATIENT'S POINT OF VIEW. *Journ.* (47) *Ment. Sci.*, 1917, Oct., p. 568.

A HYPOTHESIS CONCERNING SOME MANIFESTATIONS OF (48) **INSANITY.** *Journ. Ment. Sci.*, 1917, Oct., p. 575.

THESE are anonymous papers.

In the first the author, six years after his recovery from an attack of confusional or stuporous insanity, recalls his ideas and feelings during the period of his mental disorder.

In the second the writer from his own experience considers and seeks to explain the following attributes of the insane: their superstition and belief in magic, their hostility and violence, their erotic tendencies, their appreciation of music, their unsociability, and the suicidal tendency. H. DE M. ALEXANDER.

THE AIM AND MEANING OF PSYCHIATRIC DIAGNOSIS.

(49) ADOLF MEYER, *Amer. Journ. Insan.*, 1917, Oct., No. 2, p. 163.

THE accumulation and enumeration of symptoms, without at the same time bringing out the nature and depth of the disorder, the factors at work, and the points of attack for treatment, simply tends to create entities for mere identification. Meyer urges the absolute necessity of getting away from methods of formal diagnosis, and shows the importance of getting hold of the facts which really can be studied and worked with, and which are the safest expression of the nature and depth of the disorder, and of the points of attack for any treatment.

Our cases may be explained from any one of four points of view, viz.: (1) *structural*; (2) the *functional* field of *description*; (3) the *causal interpretation*; (4) the field of *prognosis* and *treatment*. Sometimes the facts we obtain in the structural field are a *complete explanation, e.g.*, beri-beri; or empirically they are clear enough, as in paresis. The functional field may be divided into the physiopathological and the psychopathological. In the former we may distinguish the serum reactions, biological tests, and chemical tests. But the psychopathological field is the one in which the greatest advances have been made. Since the analytic-synthetic-dynamic methods have come into use it has become evident that the psychoneuroses and even psychoses are reactions not so foreign to normal human experience.

The field of causal interpretation has led us to see the *multi-conditioned character* of all the conditions with which we deal, because in addition to the *specific* causal agent we must mention the constitutional make-up.

Prognosis should never be brought into a nosological system.

In each case the thing to do is to get the facts in regard to the reaction type, whether organic, or toxic-delirious, or affective, or paranoic, or a benign or a malignant substitutive process, or a constitutional defect or perversion, or a mixture.

According, then, to the specific cause, to the factors at work, and to the therapeutic opportunities, the case may be classed as *identical with, or akin to, a standard unit.*

D. K. HENDERSON.

A STUDY OF 608 ADMISSIONS TO SING SING PRISON. BERNARD GLUECK, *Mental Hygiene*, 1918, ii., Jan., No. 1, p. 85.

(50) OF 608 adult prisoners studied by psychiatric methods, and admitted to Sing Sing within a period of nine months, 66·8 per cent. were not merely prisoners, but had shown abnormal behaviour, 59 per cent. were classifiable in terms of deviations from average normal mental health, 28·1 per cent. showed an intelligence of 12 years or under; of 98 native-born defectives, 80·6 per cent. were recidivists in crime whose average number of sentences to penal or reformatory institutions was 3·5.

Of the 608 cases, 18·9 per cent. were constitutionally inferior; 12 per cent. had distinct mental diseases. For general purposes the cases at Sing Sing have been classified as follows: (*a*) The intellectually defective; (*b*) the mentally diseased or deteriorated; (*c*) the psychopathic; and (*d*) the unclassified. A classification of the type of offence on the basis of motive was possible in practically all instances; 63·8 per cent. were crimes of acquisitiveness, 24·3 per cent. were crimes of pugnacity, 9·9 per cent. were sex offenders, &c. In determining whether or not an offender was intellectually defective, various of the current psychometric methods were used, but it is also very important to study the individual's life career, and his ability, or lack of ability, to adapt himself to the various demands made upon him. The psychometric tests did show that it was the higher grade of defective who constituted the most serious problem, and since such cases make a good superficial impression, it is hard to convince the lay mind, or the jurist, that one is dealing here with mental defect. All those cases who do not reach a mentality beyond 10 years of age ought to be more or less permanently segregated. Of the 98 native-born cases, significant hereditary factors were present in 48 and a great many of these cases had already, in school and in their industrial careers, proved themselves to be inefficient.

Seventy-three, or 12 per cent., of the 608 cases belonged to the mentally diseased or deteriorated group; of these, 36 were cases of dementia præcox, 13 showed syphilitic disease of the central nervous system, and 14 showed alcoholic deterioration.

By far the most dangerous individual is the psychopath with anti-social tendencies.

35·03 of the 608 cases were foreign-born, and of these 11·01 per cent. came from Italy, and 9·5 per cent. from Russia.

A psychiatric clinic has now been established at Sing Sing Prison, and an attempt is being made to make a thorough examination of each patient on admission, so that he may be cared for and treated as his individual needs may demand.

D. K. HENDERSON.

SEGREGATION OF THE UNFIT IN REFORMATORIES. GUY C. (51) FERNALD, *Mental Hygiene*, 1917, i., Oct., No. 4, p. 602.

DEFECTIVE delinquents, or the "segregable," should not be imprisoned or trained in contact with those of ordinary mental capacity and unlimited responsibility. Their proper care calls for slow training in an environment adapted to their limited capacity and peculiar needs, where they should be sheltered until their return to society can be effected under conditions assuring protection to the community. The unfit should be absolutely physically segregated in a specially constituted farm colony of which the hospital and laboratory features are prominent. The larger group of fully responsible inmates should be actually physically divided into groups according to their conduct, provision being made for promotion and demotion from one intramural community to another. D. K. HENDERSON.

THE SUBNORMAL CHILD—A STUDY OF THE CHILDREN IN A BALTIMORE SCHOOL DISTRICT. (52) C. MACFIE CAMPBELL, *Mental Hygiene*, 1917, i., Jan., p. 96.

THE aim of this survey was to make a careful census of the children of school age in some one school district, to find out how many children were subnormal, and to find out the degree of the constitutional defect of these children. The district which was surveyed was of a very low social and economic level, and had a very large foreign population. Out of a school population of 1,281 children, 166 children were found to have special requirements on account of their mental constitution. Twenty-two children showed a pronounced mental defect which eliminated any prospect of their becoming self-supporting. In the absence of good home conditions, training in a suitable institution would be best for them. Seventy-eight children showed a degree of mental defect less pronounced than that of the children in the former group, but so definite that their special requirements could hardly be debated. Sixty-six children were sufficiently handicapped mentally for some modification of the school curriculum to be distinctly indicated. Eleven hundred and fifteen children seemed sufficiently well equipped mentally to digest the ordinary school curriculum. In order to train satisfactorily the children of the community, the school authorities would require (1) to have an approximate idea of the school population, with some realisation of the prospective adult level of the various groups; (2) to adapt the methods of training to the special requirements of the various groups; (3) to equip the schools and to train teachers so that the appropriate methods could be carried out.

The data on which these statistics were founded is tabulated, and graphic charts are reproduced making the whole material easy of access. D. K. HENDERSON.

A CONSIDERATION OF CONDUCT DISORDERS IN THE FEEBLE-
(53) **MINDED.** L. PIERCE CLARK, *Mental Hygiene*, 1918, ii., Jan., p. 23.

DELINQUENT and feeble-minded children of a benign type showing conduct disorders can invariably be benefited by correcting the school training, and the home and social environment. By benign type is meant those who have no essential inborn defect of instincts. Those who lag at school should at the very beginning be given special help by a group of expert teachers so as to prevent them from lapsing into a state of despair at their inability to keep up with the class. The school and home should co-operate in providing suitable outlets for their activities, and boys' and girls' clubs should be freely utilised. A number of interesting illustrative cases are reported. D. K. HENDERSON.

EDUCATIONAL METHODS AND THE FUNDAMENTAL CAUSES
(54) **OF DEPENDENCY.** C. MACFIE CAMPBELL, *Mental Hygiene*, 1917, April, No. 2, p. 235.

CAMPBELL points out how a community that devotes its philanthropic interest to jails, reformatories, almshouses, foundling asylums, while neglecting the efficiency of its school systems, is really putting the cart before the horse. The children who in later life are going to recruit the ranks of the dependents, who are going to become loafers, vagrants, alcoholics, prostitutes, delinquents, have usually shown that they are candidates for these ranks before they are 16 years of age. It is then shown how education should not be so much a matter of furnishing information as of training in good habits which will enable the adult to adjust himself adequately to his actual environment. No adequate steps can be taken in regard to dealing with this problem unless those responsible for the educational system represent a community which realises the fundamental importance of education, and looks upon its school system with jealous scrutiny. "The efficiency of the school system is a good measure of the moral and intellectual level of a community. . . . The school should have available the advice of a physician competent to give an opinion on the mental constitution of the individual pupil. With regard to the subnormal children, their education should be guided by the principle that their development is to be favoured by modifying the environment to suit their special needs. Manual training should largely replace the traditional emphasis on academic work. When the children present very serious degrees of mental defect the problem, of course,

would arise whether these children should be trained in special institutions in view of the necessity of close supervision even in adult life. . . . The subnormal child who leaves school is not missed, as a rule, by the teacher, is apt to be exploited by the parent and employer, and is considered an economic asset rather than an individual who presents rather difficult social problems."

D. K. HENDERSON.

FEEBLE-MINDEDNESS AS SEEN IN COURT. V. V. ANDERSON, (55) *Mental Hygiene*, 1917, April, No. 2, p. 260.

MANY offenders profit by the lessons learned from arrest and detention, from judicial reprimand, and probationary treatment, but in addition there is a well-defined group of offenders who do not profit by the usual methods, who seem totally unable to adapt themselves to society's laws and customs, and thus are arrested over and over again. From 25 to 40 per cent. of cases in this latter group are feeble-minded. An analysis of the histories of 100 feeble-minded individuals taken without selection has been made. 68 per cent. of cases had never got beyond the fifth grade at school, 75 per cent. were not self-supporting, the average number of arrests was 18·25, the average number of times each was placed on probation was 4·32, the average number of penal sentences was 7·35, and 75 per cent. had attained only the mental level of children below ten years.

Our courts should not continue to commit to penal institutions offenders whose central nervous systems are so conspicuously undeveloped that adaptation to the conditions of normal life is impossible.

D. K. HENDERSON.

STANDARDISED FIELDS OF INQUIRY FOR CLINICAL STUDIES OF BORDER-LINE DEFECTIVES. WALTER E. FERNALD, *Mental Hygiene*, 1917, April, No. 2, p. 211.

(56)

AN excellent paper based on the examination of 860 cases presumed to be feeble-minded. The following ten "Fields of Inquiry" were used to furnish a working basis for individual case study:—

1. Physical examination.
2. Family history.
3. Personal and developmental history.
4. School progress.
5. Examination in school work.
6. Practical knowledge and general information.
7. Social history and reactions.
8. Economic efficiency.
9. Moral reactions.
10. Mental examination.

The author believes that the difference between, say, a moron and an imbecile is quantitative rather than qualitative. Among the 860 cases, presumably feeble-minded, there were morons, idiots, cretins, epileptics, cases with mental disease rather than defect, and cases not feeble-minded, and others where further observation was necessary before a diagnosis could be made. This material is used to show how, although psychological tests of the Binet type are exceedingly important, and are of great assistance, they must by no means be considered the whole story, and that it is very unwise to pass an opinion in a given case by using only the Binet psychological tests. The case should be weighed as a whole, and the examiner should possess wide psychiatric knowledge and experience. D. K. HENDERSON.

(57) **THE GROWTH OF PROVISION FOR THE FEEBLE-MINDED IN THE UNITED STATES.** W. E. FERNALD, *Mental Hygiene*, 1917, i., Jan., p. 34.

AN interesting historical account tracing the growth and development of the care and treatment of the feeble-minded. This article is full of much valuable information, but only a few of the main points can be mentioned. Humanity and public policy demand that families should be relieved of the burden of helpless idiots. It is best to assume their care early, when they are susceptible to a certain amount of training. The tendencies to lead dissolute lives is especially noticeable in the females. The public institutions in the States are not solely used for the brighter cases needing school training, but they have been greatly extended to include all grades and types of idiocy. Education, as applied to these individuals, is not merely intellectual, but means the cultivation of the whole being — physically, mentally, and morally. Particular stress is laid on the necessity of manual training. American institutions are divided into two parts—the school, or educational, and the custodial. Not over 10 to 15 per cent. of the patients ever become self-supporting; over 50 per cent. of the adults of the higher grade who have been under training from childhood, under intelligent supervision, are capable of doing work to pay for the actual cost of their keep either in the institutions or at home. The custodial department cares for the lower grades of idiots and epileptics. The chief indication is to see their wants attended to and to make them comfortable and happy; much improvement is possible by teaching orderly and simple habits. Moral imbeciles and adults of both sexes who cannot be trusted also require permanent care; they pay their way in an institution by doing routine work. The author is in favour of a system whereby the parent institution is situated in or near a town, with

colonies in the country on land suitable for cultivation. From 1st June 1890 to 1st January 1916, the number of feeble-minded and epileptics under State care in the United States had risen from 4,001 to 34,137, or an increase of 753 per cent.; during the same period of time the population had increased 62 per cent. Despite these figures, the author emphatically states that State care is still below what it should be. D. K. HENDERSON.

OUGHT LIMITED RESPONSIBILITY TO BE RECOGNISED BY THE COURTS? CHARLES P. BANCROFT, *Amer. Journ. Insan.*, 1917, (58) Oct., No. 2, p. 139.

IT is impossible to draw an exact line of demarcation between absolute responsibility and complete irresponsibility. Gentle gradations, rather, will mark the transition between different mental mechanisms and their final expression in conduct. A thorough analysis of each individual case is the only sure way of measuring the degree of responsibility. It is important to know in detail about the heredity and environment of the offender, but it is of much more importance to analyse his judgment, reasoning capacity, and will power. Bancroft shows by case and by argument how antiquated it is to have the same laws and to apply the same standards to every type of individual, and he feels that the finding of a mental status involving responsibility, irresponsibility, and limited responsibility is based on rational psychology, and ought to be logically satisfactory to both the medical and legal professions. D. K. HENDERSON.

ILLEGITIMACY AND FEEBLE-MINDEDNESS. J. PRENTICE MURPHY, *Mental Hygiene*, 1917, i., Oct., No. 4, p. 591. (59)

A GENERAL plea for the State to take charge of every feeble-minded girl or woman capable of bearing children. D. K. HENDERSON.

FEEBLE-MINDEDNESS AND PROBATION. HERBERT C. PARSONS, *Mental Hygiene*, 1917, i., Oct., No. 4, p. 598. (60)

PROBATION is a process whereby a person convicted of crime is put under the care of a probation officer with a view to reformation. The feeble-minded should not, as a general rule, be cared for in this way, but in rightly selected individual cases probation may be a help. D. K. HENDERSON.

BETTER STATISTICS OF MENTAL DISEASES. H. M. POLLOCK, *Mental Hygiene*, ii., Jan., p. 81. (61)

A UNIFORM classification of mental diseases should be adopted, and in each State there should be a central bureau of statistics. Such bureau would receive a statistical card report concerning each patient admitted, discharged, or deceased. D. K. HENDERSON.

MENTAL HEALTH FOR NORMAL CHILDREN. W. H. Burnham,
(62) *Mental Hygiene*, 1918, ii., Jan., No. 1, p. 19.

Children should be given an opportunity for normal reaction to natural instincts and impulses; they should be trained to control their activities and impulses; they should be taught to concentrate attention on the one thing in hand. The tasks they are given should be simple and definite, instructions should be clear and concrete, decisions and actions straightforward and whole-hearted. It is important, too, to train the child to adopt an active attitude in the face of difficulties, to mix in with others, and to develop a normal sense of dependence. D. K. Henderson.

THE NEED OF CLOSER RELATIONSHIP BETWEEN PSY-
(63) **CHIATRY AND THE MEDICAL SCHOOLS.** A. H. Ruggles,
Amer. Journ. Insan., 1917, Oct., No. 2, p. 149.

It is necessary to encourage well-trained medical students to enter psychiatry, to raise the standards of psychiatric teaching in this country, to stimulate a greater co-operation between those working in mental medicine, and to help in a wider dissemination of psychiatric knowledge. D. K. Henderson.

EFFICIENCY AND INEFFICIENCY—A PROBLEM IN MEDICINE.
(64) Pearce Bailey, *Mental Hygiene*, 1917, April, No. 2, p. 196.

Psychology as applied to business has shown how important it is to determine the vocational fitness of candidates for employment. The right man for the place is essential.

In foreign countries which have a military service only a little over 50 per cent. of men are found fit for first-class service. "It is time that governments should recognise that economy, effectiveness, and national peace depend on the success with which they are able to provide suitable employment for men of all grades of capacity; that capacity is not equally distributed, and that the first great task is to analyse and assort their material. It is for medicine to show that efficiency in human affairs depends on developing and improving the material." The physical health is no doubt important, but it should be well recognised that mental health is the best assurance of national security and power.

"The practical task which psychiatry has before it concerns the determination of vocational fitness, with recommendations for the partially fit; the establishing of a rational attitude toward delinquents, with an early and economic recognition of them, and a reconstruction of some of the principles of education."

A tribute is paid to the work being done at Sing Sing and at the Boston Psychopathic Hospital. D. K. Henderson.

THE INSANE IN A COUNTY POOR FARM. THOMAS W. SALMON, (65) *Mental Hygiene*, 1917, i., Jan., p. 25.

A TERRIBLE and striking exposure of how the insane are still cared for in certain parts of the United States. In this account, which deals with Grayson County, Texas, the writer tells how the insane are herded together in one large room without distinction of colour, age, or sex, and how iron cages are still in vogue. At night the outside door of the single building and large room in which these unfortunates are crowded is locked, and no rounds are made. One attendant, "a cheerful young man," is employed to look after the forty odd patients who at least comprise the population. This young man's predecessor is at present serving a term of imprisonment for indecently assaulting a little girl who was an inmate. All but three or four remain in their cages all day. One man had not been allowed outside his cage, not for a single hour, in three years. It is by exposing and reporting such scandals that the National Committee for Mental Hygiene is helping the cause of humanity, and obtaining better care for the insane.

D. K. HENDERSON.

UNDERLYING CONCEPTS IN MENTAL HYGIENE. W. A. WHITE, (66) *Mental Hygiene*, 1917, i., Jan., p. 7.

WHITE shows how the term "insanity" is an effete one, and how the whole concept of mental disorders is something wider and broader than into that which is certifiable and that which is not. He shows how conduct is essentially psychological, and how social inefficiency should be viewed from the standpoint of mental deficiency. The so-called insane, and the various grades of the feeble-minded, are already viewed in this way, while approximately 50 per cent. of criminals, and an equal per cent. of prostitutes, might easily be brought under such a classification. It is not necessary to find in the criminal or prostitute evidences of mental defect occurring at the purely psychological level. Many such persons are well-behaved, well-conducted, and relatively efficient persons, but it is impossible for them to adjust themselves socially, and this, of course, is where their mental inefficiency becomes evident. Mental hygiene is the last word in preventive medicine. We should have psychopathic clinics and public dispensaries for dealing with mental disorders, the mental health of the school child should be investigated, while factory sanitation, employment of women and children, compulsory education, &c., should all be considered as belonging to the field of mental hygiene.

D. K. HENDERSON.

THE WIDER FIELD OF WORK OF THE NATIONAL COM-
(67) **MITTEE FOR MENTAL HYGIENE.** L. F. BARKER, *Mental Hygiene*, 1917, i., Jan., p. 4.

THE National Committee have already, in many of the States, made a survey of the conditions under which the insane exist, and it is hoped that such investigations will also be undertaken in regard to the feeble-minded. Among the other problems which should also be taken up are: (1) The marriage of people with psychopathic tendencies; (2) the pedagogic problems connected with children presenting a lower degree of educability than normal; (3) the psychology of the criminal; (4) the co-operation of psychiatrists with the best legal talent in the revision of law codes; (5) the psychiatric study of inebriates, paupers, prostitutes, sexual perverts, and a consideration of their sources; and (6) the study of the conditions, hereditary or environmental, that lead to the less outspoken instances of social maladjustment.

D. K. HENDERSON.

ORGANISED WORK IN MENTAL HYGIENE. C. W. BEERS, *Mental*
(68) *Hygiene*, 1917, i., Jan., p. 81.

A GENERAL statement of what may be expected from the mental hygiene movement. All societies for mental hygiene are seeking to achieve their aims in the following ways:—

(*a*) By means of campaigns of education. (*b*) Social service. (*c*) Surveys and special studies. (*d*) Legislation. (*e*) Co-operation with other agencies.

D. K. HENDERSON.

THE MENTAL HEALTH OF THE COMMUNITY AND THE WORK
(69) **OF THE PSYCHIATRIC DISPENSARY.** C. MACFIE CAMPBELL, *Mental Hygiene*, 1917, i., Oct., No. 4, p. 572.

THE psychiatric dispensary deals with disorders of adjustment: it deals with the failure of the individual to meet life's problems. A great deal of the work concerns itself with children of the subnormal and neurotic types. In these cases what is aimed at is a study of the physique, of the intelligence, of the emotional life and general balance, and of the influence of environment on the habits of the child. It is helpful to discuss the school situation with the teacher, and with the parents the home behaviour, and the conditions which may influence the development of the child. The individual child thus may get help, symptoms may be relieved, and improper habits checked. An important by-product is that the teacher gains a broader conception of education and the parent a deeper insight into the problem of training the child.

The adult patients of the dispensary present a great variety of practical problems. In a large group of cases the symptoms are intimately associated with personal difficulties of adjustment, and a thorough study has to be made of the whole attitude and balance of the patient, and of the life situation in which he finds himself. The aim of the treatment is the readjustment of the patient to the environment, and the method is largely re-educational. This re-education means that the patient is made to study his own personal difficulties in a rather intensive way; he traces out the factors which have influenced his habits and attitudes, he learns to face the facts of life in their biological crudity as well as in their ethical and æsthetic setting; he gains courage to discard mental make-shifts and disguises. Illustrative examples are reported of the work accomplished. D. K. HENDERSON.

THE COMMUNITY VALUE OF THE OUT-PATIENT DEPARTMENT OF THE HOSPITALS FOR THE INSANE. JOHN B. MACDONALD, *Mental Hygiene*, 1917, April, No. 2, p. 266.
(70)

IT is exceedingly important to bring the State hospital—the hospital for mental disease—into close touch with the community. The establishment of out-patient clinics and social service departments in connection with these hospitals is tending to bring this about. In Massachusetts this work has been taken up by the various State hospitals in such a splendid way that virtually every part of the State has now its out-patient clinic for mental diseases. To give an idea of what is being accomplished, it will be sufficient to say that during July, August, and September 1915, over 1,200 patients presented themselves at the clinics for medical advice, diagnosis, or, in the case of discharged patients, to report on parole. Over 33 per cent. of this number were persons who had had no previous relation with the hospitals, but who came on their own initiative, or were referred by physicians, courts, schools, other hospitals, and charitable organisations.

Such a state of affairs is educational in the best sense. It reacts on the life and character of each community, and becomes instrumental, not only in disseminating knowledge, but in the development of the community conscience. D. K. HENDERSON.

SOCIAL SERVICE IN THE STATE HOSPITAL. G. M. KLINE, *Amer. Journ. Insan.*, 1917, April, No. 4, p. 567.
(71)

A SHORT history is given of the growth of the social service movement.

Social service work has now been developed so as to include the following divisions:—

1. Investigation of special cases for specified purposes.
2. The securing of histories, medical and social, outside the hospital.
3. Home visitation or after-care of out-patients.
4. Systematic boarding-out of patients in private families.
5. Connecting needy persons with the proper agencies.
6. The weekly attendance upon the out-patient clinics.

A number of cases illustrating the points raised are reported.

D. K. HENDERSON.

THE PRACTICAL FUNCTION OF THE PSYCHIATRIC CLINIC.
(72) J. T. MACCURDY, *Mental Hygiene*, 1917, Jan., 2, p. 53.

IN this paper the relation of social service to psychiatry is discussed. An analysis has been made of 100 consecutive cases seen at the Cornell University out-patient department. There were 24 cases of psychoneuroses, in 13 of whom the etiology seemed to lie in the make-up, in 4 the environment seemed to be at fault, and in 7 there was a combination of poor make-up and unsuitable environment. Under treatment 14 of these cases showed a very distinct improvement. In three-fourths of the cases the main work is diagnostic and advisory. The benefit occurring largely depends for its success on the social service worker.

D. K. HENDERSON.

PSYCHIATRIC PROBLEMS AT LARGE. A. J. ROSANOFF, *Amer.*
(73) *Journ. Insan.*, 1917, Oct., No. 2, p. 159.

THIS paper is a condensed summary of the work done in the survey of Nassau County, which has already been abstracted. Out-patient mental clinics, whereby psychiatric service could be brought closely into touch with the needs of the community, are strongly advocated. By so doing a register of cases of mental disorder would be obtained which eventually would prove valuable in showing that the bulk of all crime, vice, dependency, and other social maladjustments in a given community, is attributable to a comparatively small fraction of the population.

D. K. HENDERSON.

A WIDER FIELD OF ACTIVITY FOR THE ASSOCIATION.
(74) JAMES V. MAY, *Amer. Journ. Insan.*, 1917, Oct., No. 2, p. 129.

WITH a view to influencing legislation, and of encouraging and assisting State hospitals in maintaining a high standard, it was proposed that all managers and trustees of State hospitals for

the insane, all members of commissions and boards of control, should be elected, *ex officio*, as active members of the Medico-Psychological Association. In the ensuing discussion the trend of opinion was adverse to the above proposal. D. K. HENDERSON.

TREATMENT.

PSYCHO-ANALYSIS IN RELATION TO SEX. HAVELOCK ELLIS, (75) *Journ. Ment. Sci.*, 1917, Oct., p. 537.

THIS paper is, practically speaking, a history of Freud's evolution as a psycho-analyst, and of the Freudian conception of psycho-analysis. H. DE M. ALEXANDER.

PSYCHOANALYTIC TENDENCIES. WILLIAM A. WHITE, *Amer.* (76) *Journ. Insan.*, 1917, April, No. 4, p. 599.

"THE psychoanalytic movement is a movement which calls for a changed view-point with reference to psychological facts, in fact truly a 'transvaluation of values,' in that it no longer views the individual as a subject for laboratory experiment, but deals with human beings in the raw, so to speak, as the doctor really sees them. It takes cognisance of their aspirations and their weaknesses, their hopes and their fears, and so refuses to see them as they would prefer to be seen, surrounded by an artificial halo. It has learned that such halos only too often serve to blind our vision to the real personality within, and that man, after all, is 'human, all too human,' never as bad as he is sometimes painted by the realist, rarely as good as the idealist would have us believe, but always, always striving. Good and bad are but relative terms indicating success or failure in the problem of development, so that lack of the worst failures can always be found that power which makes for good, while in the lives of the best are evidences of failure, and so psychoanalysis endeavours to deal with essentials, and not with surface indications."

Therapeutically also psychoanalysis has a very distinct value, as we are now coming to understand the psychological meanings of the symptoms, and the mechanism of recovery. "We are entering upon a period of the natural history method of studying the psychoses which includes both their individual and racial history."

The theories of Freud, Jung, and Adler are discussed.

D. K. HENDERSON.

Reviews

CONGENITAL WORD-BLINDNESS. JAMES HINSHELWOOD, M.A., M.D. (77) Pp. ix + 112, with three figs. H. K. Lewis & Co., Ltd., London. 1917. Pr. 4s. net.

THE subject of word-blindness is dealt with here in five chapters, which discuss in turn acquired word-blindness, congenital word-blindness, hereditary congenital word-blindness, diagnosis, and prognosis and treatment. The author has already published a number of articles on this subject, and refers here to many of the other publications which have appeared on this condition.

Kussmaul in 1877 first clearly pointed out that blindness for words could exist as a clinical entity, *i.e.*, "a complete text-blindness may exist, although the power of sight, the intellect, and the powers of speech are intact." Word-blindness is a condition in which, with normal vision and therefore seeing the letters and words distinctly, an individual is no longer able to interpret written or printed language.

A number of interesting cases are then described. The first was a teacher, aged 58, who suddenly found he could not read; he could see the letters plainly, but did not know what they were. He could recognise figures with ease. He could write with fluency to dictation, although he could not read what he had written. He had, in fact, lost his visual memory for letters, and it was accompanied by right homonymous hemianopsia. The functional independence of the visual memories of words and figures is also proved in the case of Diamandi, whose extraordinary memory for figures was a purely visual memory, while his visual memory for words was not above normal. Another visual memory which may be independently lost is that for musical notes—note-blindness. Partial word-blindness may also occur where a man knowing two languages loses his memory for one language only. Word- without letter-blindness, and letter- without word-blindness also occur.

The angular gyrus on the left side of the brain is now generally accepted as the area where visual memories of words and letters are stored. Word-blindness with agraphia results if the angular gyrus itself is destroyed. In word-blindness with ability to write from dictation the angular gyrus is intact, the lesion being below the cortex and injuring fibres passing to the left angular gyrus from the calcarine fissures of both occipital lobes. Such a lesion

usually involves also the radiation of Gratiolet, and thus is usually accompanied by right homonymous hemianopsia.

Congenital word-blindness was first described by Morgan in 1896 in a boy, aged 14, who could read figures fluently and liked arithmetic, but after seven years' training could only spell words of one syllable with difficulty. The fact that the condition may assume a family type was pointed out by Thomas in 1905, and a group of six cases in two generations is recorded here. The prognosis in congenital cases should not be too gloomy, as the author's long experience of congenital word-blindness enables him to state that "the children so affected, with proper treatment and great perseverance, can be taught to read." The collection of these cases here is most valuable.

THE TREATMENT OF TABETIC ATAXIA BY MEANS OF SYSTEMATIC EXERCISE. H. S. FRENKEL. Second revised and enlarged English Edition, by L. Freyberger, J.P., M.D. Pp. xv+209, with 129 illustrations. William Heinemann, London. 1917. Pr. 12s. 6d. net.
(78)

THE text of the previous edition, which appeared in 1902, has been revised and improved here. It has to be clearly recognised that the treatment described does not claim to influence the tabetic process, but only to have a beneficial effect on the most prominent symptom of tabes dorsalis—the ataxia. It lays special stress on careful repetition of movement, and requires very little apparatus. Treatment at a sanatorium for several months is recommended, but the treatment can be carried out at home both in slight as well as in moderately severe cases. The large number of illustrations is most helpful in indicating how the movements should be performed. The book is divided into two parts, the first part being general, and dealing with the types, symptoms, and examination for ataxia. The cause of ataxia is loss of sensation. The second part deals with the exercises, which are described at great length. The need of medical treatment and a thorough preliminary antisyphilitic course controlled by Wassermann tests is emphasised.

THE TREATMENT OF INFANTILE PARALYSIS. ROBERT W. LOVETT. Pp. ix+163, with 113 illustrations. P. Blakiston's Son & Co., Philadelphia.
(79)

THE great prevalence of infantile paralysis in America since 1907 has led to a rapid advance in our knowledge of the disease, and especially of its treatment. This book is practically concerned

only with treatment, and the various therapeutic measures considered by the author to be of most value. Operative treatment is considered at great length, and the different deformities are illustrated with much success. The author is quite agreed that operative treatment should not be undertaken for at least two years after the onset of the disease, and during this time the most important of the early therapeutic measures is muscle training. Illustrations of the tests and exercises required for this are given. The book is of value on account of the personal expressions of opinion by the author as well as on account of the extensive references to the literature. It contains much useful information.

DREAM PSYCHOLOGY. MAURICE NICOLL. Pp. ix + 194. Henry Froude
(80) and Hodder & Stoughton. 1917. Pr. 6s. net.

FRANCES COBBE, in her article on "Unconscious Cerebration" in *Macmillan's Magazine* in 1870, pointed out the myth-making tendency in dreams, which she tended to regard as compensatory. Although practically no advance was made for many years, the literature on the dream has become so extensive recently that it is difficult for those wishing to commence to study this department of psychology to find a suitable book. The present volume is well adapted for this purpose; the bias of the author is towards the Swiss school. The wish-fulfilment theory of Freud sees in the dream the gratification of a wish that is not to be fulfilled in reality. The compensatory theory sees in the dream an attempt to provide what is lacking in reality, and is protective in significance. The author thinks the terms "libido" of Freud, or "élan vital" of Bergson, unsuitable, and suggests the word "interest," although he admits that the ideal word has yet to be found. Compensation, over-compensation, complexes, extroversion, introversion, and regression are briefly described. Optimism is over-compensation on conscious levels, while pessimism is under-compensation in the same sphere. Rumour is communal fantasy. The discussion of these questions is brief and to the point, and for these reasons the book is distinctly helpful.

THE NEUROTIC CONSTITUTION. ALFRED ADLER. Authorised
(81) translation by Bernard Glueck, M.D., and John E. Lind, M.D., with an introduction by Dr William A. White. Pp. xxiii + 456. Kegan Paul, Trench, Trubner & Co., Ltd., London. 1918. Pr. 16s. net.

A FULL review of this book has already been published (*v. Review*, 1917, xv., p. 216).

STUDIES IN FORENSIC PSYCHIATRY. BERNARD GLUECK, M.D., (82) Instructor in Psychiatry and Neurology in the Medical Departments of George Washington and Georgetown Universities. Criminal Science Monograph, No. 2. Pp. viii+269. Wm. Heinemann, London. Pr. 10s. 6d. net.

THIS volume is the second of the series of monograph supplements to the *Journal of Criminal Law and Criminology* and its publication is authorised by the American Institute of Criminal Law and Criminology.

When Gall in 1810 said "the measure of culpability and the measure of punishment cannot be determined by a study of the illegal act, but only by a study of the individual committing it," he expressed an idea which is coming to be regarded as a truism. The suppression of crime is not primarily a legal question, it is rather a problem for the physician, sociologist, and economist, and especially the psycho-pathologist. The modern view of criminology is the "intensive study of the individual delinquent from all angles and points of view," and not a mere insistence upon the precise application of a definite kind of punishment to a definite crime as outlined by statute. The idea of punishment is giving way to the idea of correction and reformation, principally because the former has proved a total failure in eradicating criminal behaviour. It is the individual committing the crime, and not the act itself, which has to be dealt with. Individuals differ greatly in their susceptibility to correction or reformation, and some, because of their psychological make-up, are absolutely and permanently incorrigible, and can only be dealt with by permanent segregation and isolation from society. Crime is a type of abnormal conduct which expresses a failure of proper adjustment at the psychological level, and the study of criminology thus becomes an integral part of psycho-pathology. The series of studies here presented gives a number of case histories of criminal types as studied from the psycho-pathologist's view-point, and in one instance an attempt is made at an accurate and intensive psychological analysis of the biological forces which underlay a career of habitual stealing. A chapter discusses the forensic phase of litigious paranoia, while another gives a clinical study of the malingerer, and concludes that "malingering is a form of mental reaction manifested for the purpose of evading a particularly stressful situation in life, and is resorted to chiefly, if not exclusively, by the mentally abnormal, such as psychopaths, hysterics, and the frankly insane. Malingering and allied traits, viz., lying and deceit, are not always consciously motivated modes of behaviour, but are not infrequently determined by motives operative in the subconscious mental life, and accordingly affect to a marked extent the individual's responsibility for such behaviour."

Review

of

Neurology and Psychiatry

Original Articles

A NOTE ON THE OCULO-CARDIAC REFLEX.

By R. M. STEWART.

WHEN firm pressure is made on the globe of the eye, in a certain proportion of individuals, there follows almost immediately a slowing of the cardiac rate. This phenomenon, which is termed the oculo-cardiac reflex (the phenomenon of Aschner), has in recent years attracted considerable attention, and the variations in excitability to which it is subject in different morbid states have been made the object of study by the neurologist.

The afferent path of the impulses evoked by compression of the eye has been assumed to run in the trigeminal nerve, while the motor efferent fibres proceeding to the effector organ (in this case the heart) have been assumed to accompany autonomic fibres of the vagus. It is more probable, however, that the reflex paths are of a greater complexity, and Collet and Petzetakis, taking advantage of material afforded by the present conflict, conclude that both vagus and sympathetic form the centrifugal path of the oculo-cardiac reflex. Those observers examined five cases in which there were injuries of one vagus nerve. All five cases showed permanent acceleration of cardiac rate with variability of pulse rhythm. On the unaffected side the oculo-cardiac reflex was normal, whilst on the affected side it was inverted, firm compression of the eyeball producing acceleration instead of the normal slowing of the heart rate.

The following observations made on a patient who presented a lesion of one cervical sympathetic nerve, lend additional support to their hypothesis that the sympathetic system is concerned in the production of this phenomenon.

A Serb (Corporal G. G., aged 24) was wounded by a rifle bullet on November 13th, 1916. The bullet entered in the middle line immediately above the fourth dorsal spine, and made its exit anteriorly one finger's breadth below the level of the cricoid cartilage, and immediately to the outer side of the left sterno-mastoid muscle. He had no paralysis of motion, but had a profuse hæmoptysis.

Fig. 1.

When admitted to the —— General Hospital nineteen days later, he was found to be suffering from a right-sided hæmothorax. He complained of pain along the inner side of the right upper limb, from the axilla to the wrist, especially in its upper part. There was no objective change in sensibility, and no paralysis of the arm muscles. The signs of cervical sympathetic palsy were also noted. The wound was suppurating. Aspiration of the right pleural cavity was performed. One month later the wound had healed, and the chest condition had entirely resolved. The ocular signs were unchanged.

The following notes were made on February 23rd, 1917:—

1. Neurological Examination.

Sensory Functions.—All forms of sensibility, cutaneous, deep vibration, &c., are impaired over the whole right upper limb. One touch with a single compass point is described as two. On the right side of the face, and on the right side of the neck, there is blunting of all forms of sensibility accurately to the middle line; this area includes the accessible mucous membranes on the right side. On the right side of the thorax a similar hypoæsthetic

area extends in a caudal direction to the level of the ninth dorsal segment. The cranial nerves are normal.

Motor Functions.—There is weakness of all the muscles of the right upper extremity. The right hand grasp is weak, the left powerful. There is a fine tremor of the outstretched arms. Sensory and motor functions and reflexes of the lower extremities and abdomen are normal.

It is evident from the above description that a functional anæsthesia had been superadded to the organic injury.

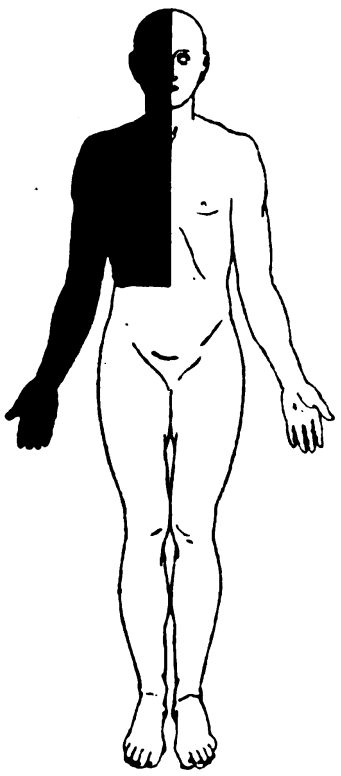


FIG. 2.

2. THE SIGNS OF CERVICAL SYMPATHETIC PALSY.

The right pupil is contracted, and measures one to two mm. in diameter under all conditions of illumination: there is no dilatation on shading. A normal contraction on exposure to light and on convergence is difficult to demonstrate on account of the marked myosis. The cilio-spinal reflex is absent on the right side, present on the left. With regard to the action of drugs on the pupil, adrenalin instilled into the conjunctival sac is without effect on either eye. Cocaine on the right side produces no change; on the left, full mydriasis, slight exophthalmos and widening of the palpebral fissure can be observed. Atropin produces full dilatation of both pupils in the course of thirty minutes; but on the right side the mydriatic effect persists much longer than on the left. There is marked pseudoptosis on the right side, which can be nearly but not quite overcome by directing the gaze upwards. There is no over-action of the frontalis muscle.

Exophthalmos and diminished intra-ocular tension exist on the right side.

There is no change in the retinal vessels nor cutaneous vaso-

motor paralysis; warmth applied to either cheek causes an equal amount of flushing.

The lachrymatory, nasal, and salivary secretions are normal. The axillary temperature on the right side is 97·2° F., on the left 96·4° F. There are no trophic changes to be noted in the skin or hair on the right side. The right side of the face, however, sweats less than the left side. This was investigated on February 18th, 1917, by the hypodermic injection of pilocarpine nitrate, gr. $\frac{1}{3}$.

Profuse sweating occurred, except on the right side of the face, neck, and thorax down to the level of the third rib, and along the posterior and inner aspects of the right upper arm where the secretion of sweat was very slight.

Subsequently, on March 2nd, 1917, it was noted that the pupil was less contracted: no other change had occurred.

The Oculo-Cardiac Reflex.—On three occasions the oculo-cardiac reflex was investigated. On two of these no graphic record was taken, and the pulse rate as counted by the observer was the only test. On the third occasion, owing to the kindness of Captain Mathewson, R.A.M.C., of another General Hospital, records of the pulse beat were taken with the polygraph.

On the two occasions on which no graphic records were taken the method used was as follows: Pressure was applied to the eye with the thumb, the patient lying in a recumbent posture. The pulse beats were counted for a space of three minutes, and at the end of the third minute pressure was applied to the right or left eye, and continued for one minute, during which the beats of the pulse were also counted.

The following are the results obtained:—

Date.	Normal Pulse Rate.	Rate during Ocular Pressure.
23/2/17	*Right.*—(1) - - - 73	65
	(2) - - - 73	73
	Left.—(1) - - - 76	52
	(2) - - - 76	52
25/2/17	*Right* - - - - 72	67
	Left - - - - 72	40

It will be seen from these figures that when pressure was applied to the globe of the left eye a marked slowing of the pulse

rate occurred; but that when pressure was applied on the right side, slowing was either absent or comparatively slight. There was, however, a considerable amount of irregularity in rate of the normal heart beat, and it is possible that in part the slight apparent slowing when pressure was made on the right eye may have been due to this. The great slowing on the left side cannot have been due to this condition.

On the third occasion graphic records were obtained. Just before pressure was applied to the right eye the normal tracing showed 24 beats in 18 seconds, a rate of about 80 beats per minute. The beats were fairly regular, but every 8th to 10th beat was followed by a longer pause than usual. Pressure was then applied for about 30 seconds. In this space of time there were 31 beats of the pulse, a rate of about 62 per minute. Thus a certain amount of slowing of the pulse rate occurred during the period of compression of the right eye. This slowing was progressively greater as the period of compression continued, the rate of pulse beat in the first, second, third, and fourth quarters of the period of compression being 76, 64, 56, 56 beats per minute respectively. The tracing shows a considerable amount of irregularity in rate, particularly during the latter part of the period of compression. Some of the intervals between beats were longer than others, the longest interval being of 1·4 seconds. This irregularity disappeared almost immediately after the cessation of compression, and the rate of the beats soon attained to that which was observed before the pressure. The rates in the four consecutive periods of 10 seconds each, which immediately followed upon release of the compression, were 66, 72, 84, and 79 beats per minute respectively.

In the case of the compression applied to the left eye much more marked results were obtained. In the 18 seconds during which the record was taken before compression the pulse rate was about 87 beats per minute, but again showed the slight irregularities which were noticed above.

For about four seconds compression seemed to have little effect upon the rate of the pulse beat—it remained about 82 beats per minute.

Thereafter a marked slowing took place, the rates being 39, 45, 42, 27, and 36 beats per minute respectively, in consecutive periods of 5 seconds each. The compression remained on for 30

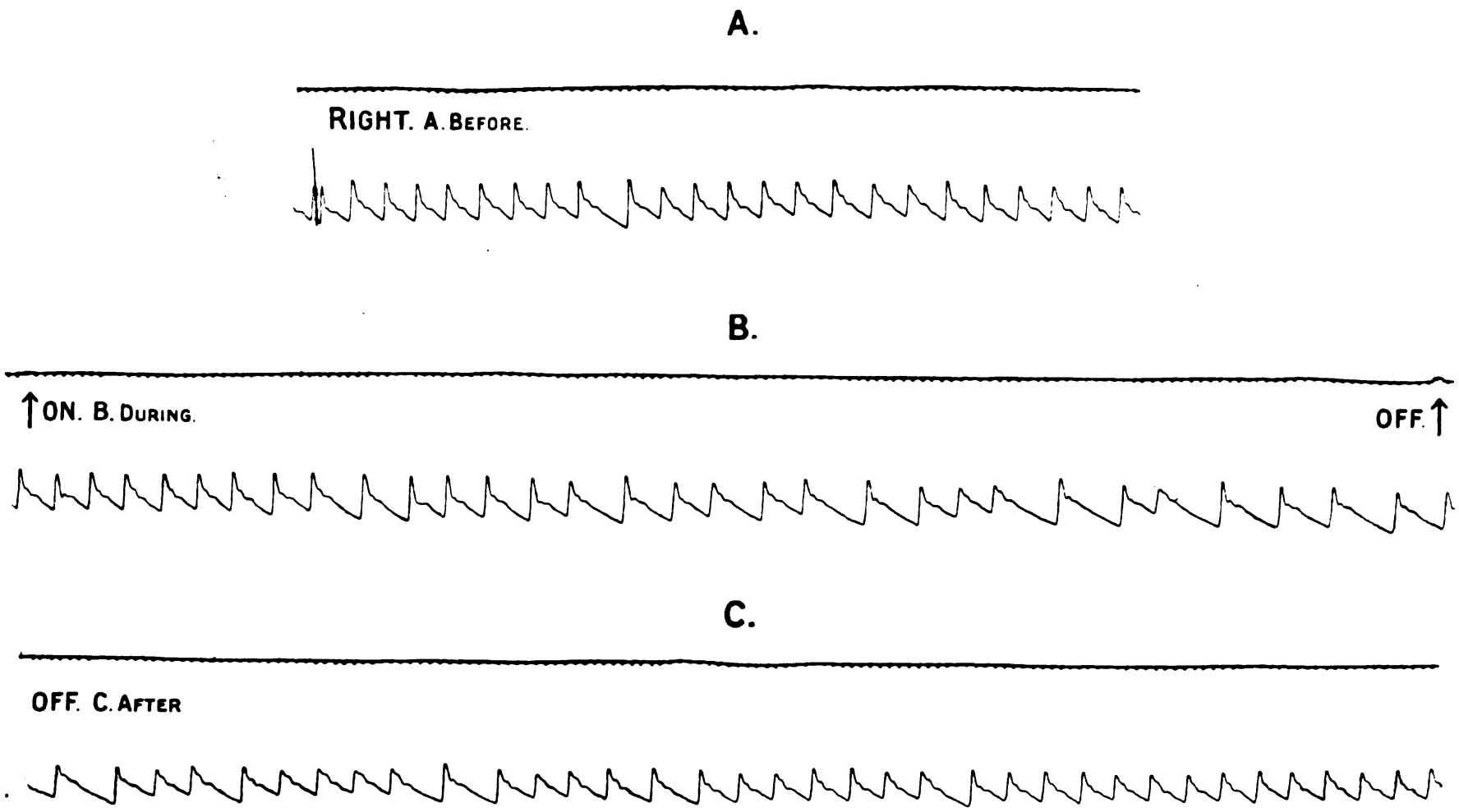


FIG. 3.

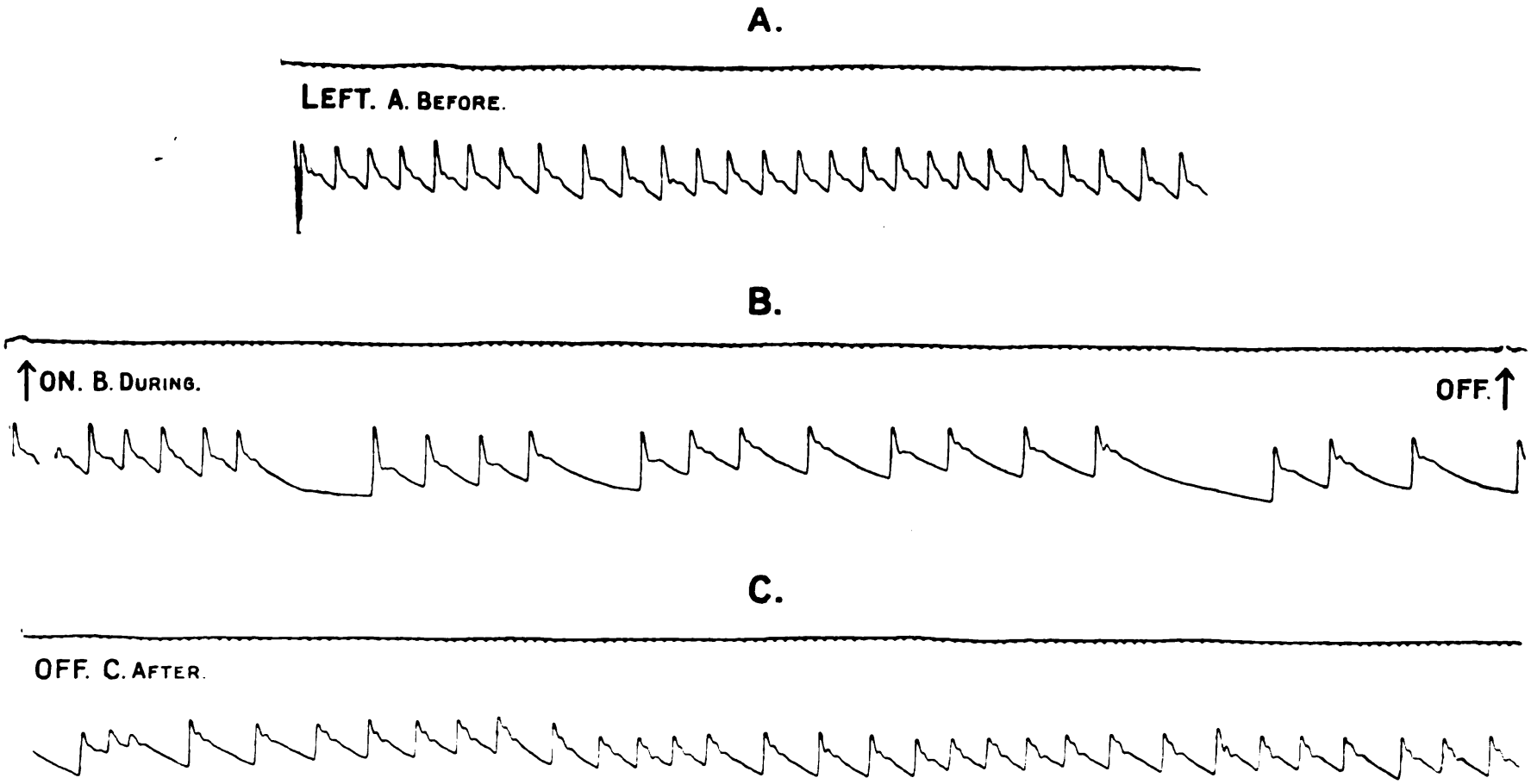


FIG. 4.

seconds, and the pulse rate during this period was 44 beats per minute. Towards the latter part of this period of compression the pauses between beats were in places markedly prolonged: the greatest of them was 3·6 seconds in duration. This marked slowing disappeared within a few seconds of the release of the compression, but a certain amount of slowing persisted for 30 seconds after the release of compression, during which the record was allowed to run on. The rates of the pulse in consecutive periods of 5 seconds each were 60, 63, 69, 69, 75, 66, and 66 beats per minute respectively.

It will be observed that complete restitution did not occur within half a minute of the cessation of compression, but that nevertheless a very sudden partial restitution occurred almost immediately after the pressure had been released.

Conclusions.—This case exhibits certain deviations from the normal picture, to which reference will be made later. It adds one to the small number of cases in which unilateral disturbance of the oculo-cardiac reflex has been described, and it gives certain information with regard to the mechanism of the normal oculo-cardiac reflex.

Unilateral disturbance of this reflex has been met with in cases of injury to the vagus nerve. After this nerve has been severed, for instance, by a gunshot wound, compression of the eye on the injured side produces acceleration of the heart beat. Compression on the uninjured side is accompanied by slowing of the normal pulse. In the present case no such acceleration occurred: the deviation which was observed took the form of a very marked diminution of the normal retardation of the pulse rate—although complete absence of retardation did not occur.

The point of exit of the bullet in the front of the neck at once suggests that the right vagus might have been affected either directly or indirectly. The absence of palatal paralysis on the right side and the integrity of the intrinsic muscles of the larynx show fairly clearly that the vagus was uninjured. (It was also found that slight slowing of the pulse could be observed when pressure was exercised upon the vagus nerve trunk.)

The bullet in its course passed near to the upper dorsal spinal roots, through which the oculo-pupillary fibres escape from the spinal cord. At its point of exit it passed from the neck just below the level of the cricoid cartilage and on the outer side of

the sterno-mastoid muscle, and therefore must have passed close to the carotid sheath with its contained vagus and adjacent sympathetic cord. It is thus possible that either directly or indirectly it injured one or all of these nervous structures. Had the vagus been completely paralysed the response to pressure on the right eyeball would probably have been one of cardiac acceleration. Had the vagus been uninjured one may assume that the response would have been the normal retardation. The actual response was not one of acceleration, but one of greatly diminished retardation.

Had the bullet injured the sympathetic fibres which pass through the first and second thoracic roots to the cervical sympathetic chain it would have disturbed or paralysed the accelerator fibres to the heart and the oculo-pupillary fibres. Had it injured the sympathetic in the neck it would certainly have injured or paralysed the oculo-pupillary fibres, and might have injured *some* of the accelerator fibres, if the statement that the preganglionic accelerator fibres in part pass to the superior cervical ganglion (and the post-ganglionic thence pass down again to the heart) be an accurate one. If, however, some of the accelerator fibres (pre-ganglionic) end in the inferior cervical ganglion, the accelerator path would in this case be injured only in part.

Even had the injury to the accelerator path been a complete one, it is scarcely to be expected that the oculo-cardiac reflex would have been disturbed—always on the assumption that the different fibres for the oculo-cardiac reflex run from the eyeball to the central nervous system in the fifth cranial nerve, a statement for which there at present seems no conclusive evidence. The possibility that the depression of the oculo-cardiac reflex on the right side may have been due to a disturbance on the afferent side of the mechanism—conditioned by diminished intra-ocular tension affecting the sensory nerve endings of the eye—can hardly be entertained in face of the observation that the pain experienced by the patient was equally great in the two eyes. The same observation also eliminates the possibility that the phenomena were due to a hemianæsthesia of the face and neck. We are faced here with a difficulty that the phenomena presented by this case are not capable of explanation on the assumption that only one of these efferent mechanisms was disturbed. They can neither be explained on the assumption that the vagus only was injured,

nor on the assumption that the accelerator fibres of the sympathetic chain itself only were injured. The curious disturbance of the oculo-cardiac reflex seen in this patient might, however, be explained on the assumption of a mixed lesion, in which the accelerator fibres were completely and the vagus fibres partially paralysed. Do the other phenomena presented by the case support this view? The ocular signs of sympathetic paralysis (with the subsequent diminution in the degree of myosis) and the partial anidrosis on the right side point to incomplete paralysis of the fibres of the cervical sympathetic. The seat of the paralysing lesion might have been either where these fibres (pre-ganglionic) pass from the spinal cord to the sympathetic chain or in the sympathetic chain itself. The presence of a subjective disturbance of sensation in the territory of the first and second dorsal roots lends considerable support to the idea that the seat of the lesion was in the efferent sympathetic fibres near their exit from the spinal cord, but does not exclude the possibility that the sympathetic chain itself was also injured in the neck.

But the absence of objective sensory changes (we disregard the hypo-æsthesia of "functional" character) and motor paralysis in the distribution of dorsal nerve roots would point to the seat of the lesion as being in the anterior triangle of the neck.

It would seem to be impossible to explain this condition without the assumption of injury to the cardiac inhibitory fibres in the vagus nerve, but the most curious point in the case is the apparent absence of all other signs of vagal paralysis. It is difficult to suppose that the palatal and laryngeal fibres could have escaped while the inhibitory fibres were injured. On the other hand the partial disturbance of the inhibitory nerves (for complete absence of retardation was not observed in the oculo-cardiac reflex) perhaps allows us to assume that the injury was so slight a one, that while the inhibitory fibres were partially paralysed the laryngeal and palatal fibres escaped. It may be suggested that the disturbance of the oculo-cardiac reflex here described is explicable on the assumption that paralysis of the inhibitory fibres in the vagus greatly, if not completely, abolished the normal slowing response; and that concomitant paralysis of the accelerator fibres prevented the appearance of the accelerator effect which is usually seen in cases of vagal paralysis. In any case the phenomena are of interest from another standpoint. It

is now well known that a rifle bullet which passes close to a peripheral nerve, but without destroying the continuity of any part of it, may yet be paralysed by "concussion." The phenomena in this case would seem to extend this observation to the vagus and the fibres of the cervical sympathetic. The partial nature of the disturbances here described and their gradual disappearance (which, however, was not complete within the period when the case was under observation) point to this conclusion.

They also seem to show the existence of a process of recovery in the sympathetic system—at any rate when the lesion is a partial one—which it is suggested existed in this case.

One final and perhaps subsidiary point of interest is the absence in this case of obvious disturbance of the spinal cord. In a large proportion of cases in which a rifle bullet passes close to the spinal column it has been found that injury of the spinal cord occurs. This injury often amounts to that inflicted by a complete transverse lesion, yet in this case, although the bullet entered almost exactly in the middle line of the spinal column and passed through an intervertebral space very close to the spinal cord, absolutely no signs of spinal paralysis remained after the transitory initial disturbance had resolved.

In conclusion, the writer is indebted to Captain John Patrick, R.A.M.C. (T.), for permission to report this case.

Letterpress Accompanying Figures.

Fig. 1. Paralysis of the cervical sympathetic on the right side. The dotted line encloses an area of relative anidrosis. The wound of exit in the neck can be seen.

Fig. 2. Diagram showing distribution of sensory change. Over the shaded area there is blunting of all forms of sensibility.

Fig. 3. Polygraph tracings from the right radial pulse. (The three parts, *a*, *b*, and *c*, of each tracing are directly continuous.)

(*a*) The normal pulse tracing.

(*b*) The tracing obtained during compression of the right eyeball. The point of stimulation and release of compression are marked above the tracing, and the time in one-fifth seconds.

(*c*) The tracing obtained immediately after the cessation of compression.

Fig. 4.

(*a*) The normal tracing obtained before compression of the left eyeball.

(*b*) The tracing obtained during compression of the left eyeball.

(*c*) The tracing obtained immediately after the cessation of compression.

ON THE OCCURRENCE OF A CEREBELLAR SYNDROME FOLLOWING HEAT STROKE.

By R. M. STEWART.

(With Plates 1, and 2)

ALTHOUGH the immediate effects of heat stroke (thermic fever) show considerable variation, symptoms referable to disturbance of the functions of the cerebro-spinal nervous system are constantly present, and pathological investigation has shown that the probable seat of the lesion of thermic fever is in the nerve cells of the central nervous system, and particularly those of the medulla oblongata.

The remote effects of heat stroke vary according to the severity of the case, and may, indeed, be absent; they are expressed clinically by subtle and ill-defined psychical changes—emotional instability and irritability, lowered tolerance to alcohol, &c.—changes which it is legitimate to assume are determined by microscopic or molecular lesions of the cerebrum.

So far as the writer is aware, no cases of organic nervous disease directly attributable to heat stroke have been hitherto recorded. The case described in this paper is of unusual interest, in that the remote effects of a severe attack of heat stroke were manifested by the development of a highly characteristic cerebellar syndrome.

HISTORY.

Family History.—The patient, H. S., is the eldest member of a family of five, being born in 1882. Both parents are of a neurotic type. Three children died in infancy, one in a convulsion. The surviving brother is 26 years of age, and healthy.

Previous History.—The patient had measles and chicken pox in infancy, scarlet fever at the age of 7 (no otorrhœa). He was a nervous boy, slept badly, and on account of his instability received no education until he was 7 years of age. He had an excellent scholastic record, and when he left school at the age of 15 had reached the highest standard. As a youth he was fond of outdoor exercise, and played a good game of hockey. On leaving school he obtained a situation in an insurance company.

He served four years in the Territorials. His mother states that he was never able to stand hot weather, complaining much of headaches in the summer. There is no history of venereal disease.

Origin and Mode of Onset of Present Illness.—For the following account of the patient's illness in Egypt I am indebted to Mr J. Morley, F.R.C.S.

On October 1st, 1914, the patient left —— with his regiment, and reached —— after a twenty-six hours' journey by train. He was then in good health. On arrival the regiment marched to the barracks, a distance of about a mile. The men wore sun helmets, thick serge uniforms, and carried their full equipment on their backs. The temperature was 109° F. in the shade. Shortly after his company had been dismissed the patient was found lying in the shade outside a barrack room, deeply unconscious. When admitted to hospital a few minutes later he was deeply comatose, flushed, stertorous, and made irregular clonic convulsive movements of an epileptiform nature. His body temperature was 109·2° F. After the application of an ice-pack it fell rapidly to 95° F. Subcutaneous infusion with normal saline was then given, and the temperature again rose to 104° F. The temperature remained high, varying between 100° F. and 103° F. until October 6th, when it subsided to normal. There was some head retraction at first, and incontinence of urine and fæces. His tendon and plantar reflexes were absent at this stage. For five days he was profoundly unconscious, and nasal feeding was necessary.

On October 6th he was still unconscious, but less deeply so, and could swallow a little. On October 10th he began to show signs of recovering consciousness and could say "yes" or "no," but his sentences were mere gibberish. He showed a certain amount of intelligence, for when asked to name the rank of a sergeant standing near, after vainly trying to articulate, he pointed to the chevrons on the man's left arm, and with much difficulty succeeded in holding out three fingers. He was quite childish, and had incontinence of urine and fæces as before. He lost weight rapidly.

By December he had improved considerably, and had regained control of his sphincters. The following note was made on December 10th, 1914. "He can talk rather better now, and the other men have taught him two songs; he can whistle a little, and

is altogether more intelligent. His memory has not gone, for he can tell me the places we stopped at on the voyage out, and also how many pence are equal to a piastre. He is very easily moved to laughter or to tears, and is still quite childish. At present he is trying to walk, but without much success so far."

The reflexes were now those of spastic paresis, and there was marked ataxia together with in-coördination of movements in arms and legs. On attempting to grasp anything the fingers were often hyperextended, and only the wrist flexed — the fingers refusing to flex as he intended, and undergoing a sort of athetoid movement instead. Speech was scanning and very indistinct; nystagmus marked. Owing to his mental state his sensory functions could not be examined.

Progress was now slow, and early in 1915 he was evacuated to England, and on April 28th, 1915, transferred from the General Hospital to the Military Hospital.

The following notes were made on admission (April 29th, 1915):—

Nervous System.—There is some tremor of the tongue. Pupils dilated, equal, and regular: they react normally to light. Dynamic lateral nystagmus, slow and coarse: other cranial nerves normal. There is marked paresis of the legs, and some paresis of both arms; the hands are markedly hyperextended. There are aimless irregular movements of hands and face muscles. Wasting of muscles—legs especially.

Reflexes.—Plantar: extensor response both sides. Epigastric reflexes absent; abdominal: right only obtained. Cremasteric absent. Knee jerks much increased. Ankle clonus not obtained. Arm jerks exaggerated.

He has almost continuous movements of his head and arms: these movements are athetoid, but they cease during sleep, and while being examined he allowed his hand to remain without movement for two or three minutes. His gait is markedly spastic. His speech is very much disturbed, so much that it is very difficult to understand him.

His sympathetic system is much disturbed. One can write a letter on his back by using a match, and on his back and chest the resulting tâche is so marked that a wheal is easily felt by the finger. From head to foot this tâche is excessive.

Mental State.—His power of attention is fair. He understands

questions and answers at once as far as he is able. He recognises objects well. He is in a distinctly emotional condition and laughs in a silly manner. He says he cannot give his attention for any time to any subject. He cannot remember what he reads. His memory for remote events is fairly good; he remembers coming home in a Castle liner, and that there were 1,700 people on board.

Additional Note, June 18th, 1915.—He is much improved and less emotional. Sleeps and eats well. The involuntary movements of the limbs are disappearing. He can speak more distinctly, and is gaining more capacity to use his hands. He cannot yet walk but is stronger, and more balanced when on his legs.

The following examination was made by the writer early in February 1916:—

Physical Examination.

The patient is a short, thick-set man of about five feet three inches in height. He is usually to be found sitting at a small table in the day room by himself. He is well nourished and in good health. The lines on his face are not well marked, so that there is a certain heaviness of facies, but his eyes are bright and intelligent. He follows the daily events of the ward with quickness and alertness. One characteristic feature is the patient's emotional instability. He smiles, laughs, and sometimes cries with great readiness.

Mental State.

He is childish and requires humouring. As a rule he is docile, and his voluntary attention is good. He is able to read parish magazines, but often sits at his table for hours unoccupied. He is sometimes depressed and cries like a child. He is well orientated and can correctly give the date. Perception is normal, and there are neither hallucinations nor delusions. He has little initiative or spontaneity, and will not attempt to exercise his faulty limbs unless urged to do so. He appears to have a fairly complete insight into his condition. He correctly carries out spoken and written commands, and is able to solve simple mathematical problems. His parents state that he is totally altered in general appearance and character. Articulation is slow, clumsy, and somewhat staccato: "P" is pronounced like "B," "T" like "D." Nasal resonants (*m*, *n*, *ng*) are well pronounced but exaggerated.

Circulatory System.

Slight arrhythmia and acceleration of the pulse rate (96 per min.) are the only abnormal signs.

His alimentary, hæmopoietic, respiratory, and genito-urinary systems show no abnormality.

Nervous System.

Cranial Nerves.—He is unable to recognise odours.

Vision.—There is a low degree of myopia in both eyes; his visual fields are moderately contracted; the extent of his fields for colour cannot be ascertained owing to his conflicting answers. Ocular movements are good in all directions and the visual axes are parallel.

There is slight pendular nystagmus when the patient moves his eyes in a lateral direction: the amplitude of movement is small.

The pupils are of moderate size, regular in outline, and equal; they react briskly to light and contract well on accommodation. The cilio-spinal reflex is present, and the normal sympathetic effects following cocaine installation can be observed.

The corneal reflex is brisk on both sides. The masseter, temporal, and pterygoid muscles contract well.

There is slight weakness of the facial muscles, and overaction when the patient closes his left eye. He is able to frown, wrinkle the forehead, close the eyes tightly, &c., in a normal manner. He is unable to whistle.

Hearing is normal in both ears. Taste is markedly defective; the patient cannot recognise solutions which are salt, sour, sweet or bitter, even when allowed to withdraw the tongue into the mouth.

There is no anæsthesia of the mouth or fauces. The palate moves symmetrically, but rather feebly, during phonation. The palatal reflex is present on both sides. The patient has no difficulty in swallowing. The muscles innervated by the spinal accessory nerve contract normally. The tongue protrudes evenly and straight without tremor. It is interesting to note that when the tongue is put out on command it is protruded to the limit of possible movement.

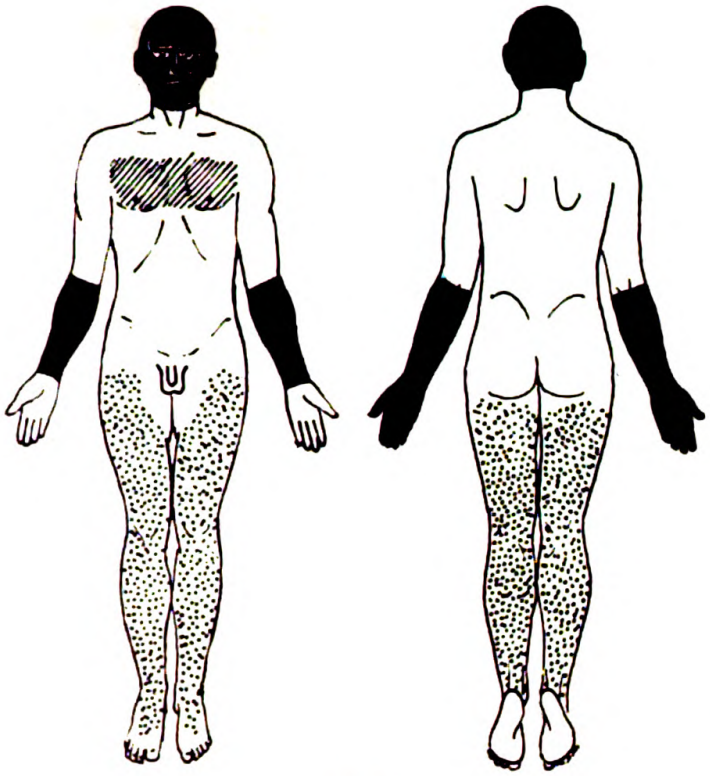


FIG. 1.

FIG. 2.

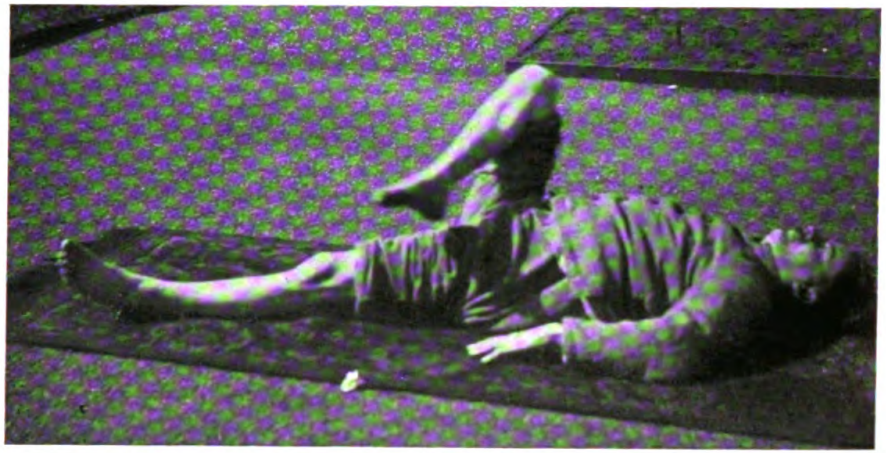


FIG. 3.

PLATE I.

Sensory Functions.—The patient makes daily complaint of pain in both legs—a dull, aching pain localised in the calves. He also complains of cold feet. He has no headache nor feeling of giddiness. Extensive areas of anæsthesia are present. The forearms are completely insensitive to pin-prick over symmetrical areas which extend from the "bracelet" of the wrist to the transverse fold at the bend of the elbow. Both aspects of the forearm and the dorsal surface of the hand are analgesic, but the palms are normal. There is complete analgesia to pin-prick on the whole of the face and scalp, and on the lateral aspects of the neck as far as a line 2·5 cm. below the angle of the lower jaw. The line of demarcation between normal and abnormal skin is sharply defined. Both pectoral regions are hyperæsthetic to pin-prick. Sensibility to light touch is everywhere normal. In the lower extremities there is complete loss of sensibility in the hairs, which may be pulled out without occasioning any discomfort (Fig. 1). Localisation, joint sense, and sense of passive movement are normal. The vibrations of a tuning fork are everywhere appreciated. Appreciation of weight, size, and form is normal. The patient responds normally to tickling.

Motor Functions.—General muscular development is remarkably good. There is no local atrophy nor fibrillation. All voluntary movements are executed by the patient without any detectable loss of power. The grasp of each hand is powerful. In the lower extremities the extensor muscles are definitely stronger than the flexors. It is worth noting that when the patient is making strong muscular contractions he frequently bursts into uncontrollable fits of laughter. There is no tremor. When the patient holds his upper limbs in a horizontal position the fingers are widely separated and slightly hyperextended.

Tonus.—The muscles of the upper extremities feel firm to the touch; those of the lower limbs are hypotonic. It is possible without effort passively to flex the legs on the thighs, so that the heels come to rest on the buttocks. If, while the patient is energetically attempting to flex either the forearm or leg against resistance, the observer suddenly releases the limb, it is seen that the movement of flexion continues, and is not followed by a brisk movement of extension.

Co-ordination.—As the patient's most striking signs were

those of in-coördination or ataxia of a cerebellar type, they are considered in a separate section of this paper.

Reflexes, Cutaneous.—The epigastric and abdominal reflexes are equal and brisk. The plantar reflexes are of the normal flexor type.

The arm jerks (supinator, biceps, triceps) are present. The knee jerks are much exaggerated. There is a tendency to ankle clonus. The organic reflexes are normal.

The electrical reactions of muscles are normal, and examination of the vertebral column and skull reveals no abnormality.

Examination of the Vestibular Apparatus.

In view of the patient's disturbance of gait and station the following tests were carried out. Normal results were obtained in each test.

A. Gomometry (Stein).—The patient placed in a supine position on an inclined plane with bandaged eyes can readily appreciate variations of the angle or inclination.

B. Induced Vertigo.—The patient is placed in a chair capable of being rapidly rotated. He recognises from the very first a sense of rotation, and experiences a post-rotation vertigo in the opposite direction at the moment of arrest.

C. Induced Nystagmus.—All forms of vestibular stimulation —mechanical, thermal, and electrical—induce nystagmus in the patient.

Rotation in the chair, either towards the right or towards the left, induces an intense post-rotation nystagmus. Similarly the injection of cold water at 25° C., and hot water at 40° C., produces calorific rotary nystagmus. In the former instance it appears when the patient looks towards the non-injected ear, and persists for two minutes; in the latter it is produced when the patient looks towards the ear injected. Lastly the passage of a galvanic current of 3-5 milliamperes through the head induces a fine nystagmus. The head bends towards the side of the positive pole, and the eyes are directed in the same direction. The patient is unable to carry out successfully the duration tests after induced nystagmus, apparently owing to mental confusion.

On the Presence of Cerebellar In-coördination.

Cerebellar in-coördination or ataxia presents certain features which distinguish it from the ordinary sensory ataxia. Since sensory changes are absent the patient is conscious of the degree of contraction of his muscles, and consequently his knowledge of the position of each segment of his limbs at any particular moment. Vision plays little or no part in this estimation; hence the ataxia is not exaggerated by closure of the eyes—there is no Rombergism. Further, owing to the integrity of paths subserving the passage of afferent stimuli, simple movements of the limbs are relatively well executed. The defect is seen in the fusion of elementary movements necessary for the execution of complex movements, and in disorder of equilibration.

But ataxia, disorder of equilibrium, together with the well-known clinical signs such as vertigo, nystagmus, scanning speech, &c., may be equally well marked in affections of the vestibular apparatus, and although they are not identical in the two conditions the differences are so slight that no sharp distinction can be made.

Babinski considers that the phenomena of cerebellar catalepsy, asynergia, adiadococinesia, and dysmetria are attributable *solely* to lesions of the cerebellum, and must therefore be regarded as constituting a true cerebellar syndrome.

The patient here described displayed these phenomena very clearly, as will be seen in the following description.

1. *Dysmetria.*

Movements performed without measure in time and space.

A. Upper Limbs.—(1) In performing the finger-nose test slowly the patient's forefinger reaches his nose without digression: on arriving there slight rhythmic movements of the finger take place. When the test is performed rapidly the finger hits the nose with some violence, and frequently passes it, coming to rest on the cheek or near the ear. This dysmetria is seen when the movement is performed with either arm. Closure of the eyes does not accentuate this phenomenon.

(2) When the patient is asked to draw a horizontal line to a certain point marked on a sheet of paper, the hand holding the

pencil is invariably carried beyond the point marked. Similarly, in copying a vertical series of zigzags, the lines are made of unequal length, and frequently pass their proper limits.

(3) Prehension—grasping a glass of water. When about to grasp a glass of water the patient opens his hand widely—much more than in the normal subject. The thumb and fingers are actually hyperextended, and are then thrust forward in contact with the glass (Fig. 2). If he be then directed to convey the glass of water to his lips, he opens his mouth as wide as possible, and this long before the glass is anywhere near his lips.

(4) Reversal of the hand. When the subject extends both arms horizontally in front of him, with the palms facing upwards, and then reverses the position of the hands, the movement of pronation is exaggerated, so that the thumb comes to lie on a lower plane than the rest of the hand. This is equally manifest on both sides.

The following additional tests were devised for this case.

(*a*) The patient is asked to deal out a pack of cards. The cards are held very firmly with one hand, and one of them is then seized with the other hand, which approaches the pack with widely separated and hyperextended fingers. The card, instead of then being thrown on to the table in the normal way, is slowly carried until it rests above the pile lying on the table, when the hand then opens to its widest extent, and the card drops on to the table.

(*b*) An object is placed in the patient's hand and he is asked to fling it away from him. His efforts are invariably unsuccessful: either the object is released from the hand at the commencement of the propulsive part of the act, or its release is too long delayed, so that no momentum is imparted to the object, which drops to the ground near the patient's hand.

(*B.*) *Lower Limbs.*—When the patient, lying on his back, attempts to touch the right knee with the heel of the opposite limb, he carries the foot too far in in a proximal direction, so that the heel touches the thigh several inches above the patella, and it is often only after several movements alternately too high and too low that he succeeds in his efforts, and brings the heel to rest on the surface of the knee (Fig. 3).

The dysmetria is greater when the patient uses the right heel to touch the left knee, and before finally coming to rest the heel oscillates from side to side.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

FIG. 8.

PLATE II.

A similar defect in the execution of movements with either lower limb is seen when the patient attempts to touch with his toes the hand of the observer, which is held at varying distances above the feet of the patient. The range of movement is invariably greater than that required for the accurate performance of the act.

Dysmetria is also well seen when the patient attempts to walk. Owing to excessive flexion of the thigh on the abdomen, the foot of the limb which is moving forwards is raised to an unnecessary height off the ground, and in the final stage of the step, owing to the excessive extension of the thigh, is applied with too much force to the ground. In this way a "stamping gait" results.

The following are additional examples of dysmetria of movements performed by paired muscles of the head:—

(1) The patient is asked to drink a small quantity of water. One observes that he opens his mouth very widely and long before the glass is anywhere near his lips (Fig. 4).

(2) When asked to protrude the tip of the tongue the whole organ is thrust out to the limit of its possible movement.

(3) The patient can only smoke a cigarette in a holder. If the cigarette is held between his lips it is quickly flattened by excessive pressure of the lips.

2. *Asynergia.*

(The inability to combine a series of movements or displacements which should, in a complete movement, be simultaneously executed by each segment of a limb). The patient manifests asynergia both in his gait and in the performance of certain movements.

(*a*) *Gait.*—(Figs. 5, 6, and 7). The patient is unable to stand without support. If placed in the erect attitude he invariably falls in a backward direction, but if he is assisted by some one on either side, he is able to advance without any attempt being made to move him. It is then seen that each limb partakes in a succession of simple movements instead of their simultaneous association. The normal subject in walking raises one inferior extremity in one continuous movement, and advances it together with his trunk; but when the patient attempts to walk one foot is first raised (higher than in the normal gait—dysmetria), and having then been carried forward, is placed abruptly on the ground along

its whole length. During these *successive* movements which are slowly performed the trunk has failed to advance: it remains passively behind, and is often slightly flexed in a backward direction. Consequently after the first step the patient can advance no further. If, however, his trunk is supported from behind, or if he is gently pulled forward by his hands, he is then able to make further progress. In advancing the steps succeed each other fairly regularly and without much deviation from the course pursued by a normal individual.

(*b*) When the patient, supported in a standing attitude, is asked to bend both his head and trunk in a backward direction, the lower extremities remain immobile, there being no flexion of the leg on the foot, and thigh on the leg—movements which the normal individual makes in order to preserve his equilibrium.

(*c*) The patient lies flat on his back with his arms crossed in front of his chest. If he be then directed to sit up without using his arms he fails in his efforts. Both thighs become flexed on the trunk, the legs remaining extended so that the heels are raised for some distance off the ground (Fig. 8).

(*d*) The patient is seated on a chair and endeavours to bring the toes of one foot to an object held two feet above the ground. At the commencement of his effort the thigh is flexed on the trunk, and the leg only slightly extended on the thigh. Extension of the leg then becomes more energetic, and the toes reach the object with a certain degree of force. In returning the same leg to its original position the leg is first flexed on the thigh, the latter moving only slightly. Then when the leg has reached a position of some flexion the thigh is abruptly extended, and the foot comes to rest on the ground. A similar splitting up of movements into their elementary constituent parts is seen when the patient attempts to draw up either heel as near as possible to the buttock.

The following additional signs may also be included as examples of asynergia:—

(*e*) When the patient is asked to direct his gaze from a point in the mesial sagittal plane to some object placed on one side of him, lateral deviation of the eyes first occurs, the head then turning in the same direction.

(*f*) The patient's arm is adducted and flexed at the elbow, so that the fist touches the shoulder. He is asked to advance the

fist from the shoulder in one horizontal plane. In attempting to perform this act he first extends the elbow, and then abducts the upper arm from the side of the chest wall.

Adiadococinesia (loss or impairment of the ability to make rapid and successive voluntary antagonistic movements, while motor power, and the performance of isolated movements, are normal).—The patient is unable to perform rapid alternate movements of pronation and supination with either upper limb. He performs the acts awkwardly and slowly, pausing between the two alternate movements.

The same phenomenon is also seen when he attempts rapidly to flex and extend the elbow, open and close either fist or "twirl" his thumbs. He is equally slow and clumsy when making efforts to clap his hands.

Cerebellar Catalepsy (the ability voluntarily to maintain the limbs in certain fixed positions with a greater steadiness than is normally possible).—On testing the patient this phenomenon was found to be absent. When asked to stretch the arms in a horizontal position in front of him slight oscillations soon became evident, and were accompanied by a subjective feeling of fatigue. A similar degree of instability could also be observed in the lower extremities when suitable tests were applied.

The Nature of the Pathological Changes Present.

In the absence of a pathological examination it is impossible to decide the question of the extent and precise nature of the pathological changes which produced the various nervous symptoms described above, but that they were the result of an attack of heat apoplexy seems certain. The patient, after a fatiguing journey, had marched some distance clad in thick serge, carrying his full equipment at a period of the year when a high atmospheric temperature prevailed.

The symptoms he displayed were those of a typical attack of heat stroke, and the subsequent improvement under simple hydrotherapeutic treatment in no way favours the belief that some other disease was present.

The conclusion that the probable site of the lesion was in the nerve cells of the central nervous system is supported by a consideration of certain experimental observations.

It has been shown by Marinesco that a temperature of 45° C. is fatal to animals in one hour, and one of 43° C. after a longer period of time.

Halliburton and Mott found that a temperature of 47° C. is the coagulation temperature of neuroglobulin. They also found in their experiments on cats' brains that at 42° C. the neuroglobulin separates out, but not at lower temperatures. The examination of cats' brains, after they had been kept at 42°-43° C. for three and a half hours, showed chromatolysis in the nerve cells, and they concluded that a coagulation necrosis takes place in the nerve cells due to coagulation of the cell globulin, and that when this occurs the protoplasm is destroyed.

Castellani and Chalmers in their text-book of "Tropical Medicine" illustrate a nerve cell from the medulla oblongata in a condition of coagulation necrosis, with disappearance of the Nissl bodies, from a case of sunstroke in which no pathogenic organisms could be found. They are of the opinion "that it appears probable that the seat of the lesion of thermic fever is in the nerve cells of the cerebro-spinal nervous system, and particularly those of the medulla." Post-mortem examination of the brain in recent cases of heat or sunstroke shows meningeal congestion, minute hæmorrhages in the white matter, and an increase in the amount of cerebro-spinal fluid beneath the membranes and in the ventricles. Microscopically, the capillary vessels are congested, the nerve cells show coagulative necrosis, and disappearance of the Nissl bodies together with a swollen and chromatolytic condition of the nuclei.

It is of interest to note that at the commencement of his illness the patient had a very high body temperature, 109·2° F., associated with epileptiform convulsions, and that the fever persisted for five days. It is, perhaps, legitimate to assume that the initial hyperpyrexia may have damaged the nerve centres, for, as noted above, neuroglobulin separates out at a temperature of 42° C. Again, when the patient recovered consciousness it was found that not only were there motor symptoms (dysphagia, spastic paralysis, dysarthia, &c.), but also derangement of the higher psychical functions. In other words, the morbid change was apparently not confined to any one portion of the cerebro-spinal axis, but involved the nervous system as a whole—cerebro-spinal and sympathetic.

During the subsequent period the motor paralysis gradually disappeared, articulation became more distinct, and the patient's general intelligence underwent a slight improvement. Fifteen months after the commencement of the illness many of the initial symptoms had entirely disappeared, and now in-coördination of voluntary movements and a profound mental change were the patient's most prominent symptoms.

One may conclude that the degree of damage varied in different localities or that some areas were capable of a more complete restitution to the normal than others (or possibly that other undamaged nerve cells vicariously assumed the functions of those damaged beyond repair).

The majority of cases in which the above described phenomena have been recorded are those in which there are gross destructive lesions of the cerebellum by various kinds of tumour which frequently compress adjacent organs, particularly the pons and medulla oblongata. In such cases the phenomena are frequently marked by irritative or paralytic conditions.

A series of cases in which the pathological changes were generalised and purely atrophic was described by Rossi in 1907. His observations are of considerable importance and may be briefly referred to here. The clinical features closely resembled those described by Babinski, the patients exhibiting the characteristic disturbance in gait, dysmetria, and asynergia.

The most constant pathological changes were found in the cerebellar cortex-atrophic lesions implicating the molecular layer, the Purkinje cells, and the granules. In one case there was atrophy of the Purkinje cells without changes in the granules or molecular layer. The lesion may, indeed, consist solely of disappearance of numbers of Purkinje cells.

A closely analogous state in a young cat has been described by Langelaan. The animal exhibited all the defect phenomena which Luciani describes under the heads of asthenia, atonia, and astasia. At the post-mortem examination he observed a marked atrophy of the whole cerebellum which involved only the cortical elements (granule layer and layer of Purkinje cells); the central nuclei and those of Deiters and Bechterew were normal in form and structure.

It would appear probable, therefore, that diffuse cortical degeneration of the cerebellum is capable of giving rise to a cere-

bellar syndrome, and that the Purkinje cells (which establish important relations with other centres) are especially liable to damage. In the light of the foregoing facts the writer suggests that the various nervous symptoms exhibited by the patient may be adequately accounted for on the assumption that a high body temperature caused a varying degree of damage to the nerve elements throughout the whole nervous system, the final effect of which was expressed clinically by a grave alteration of general intelligence and by disturbances of voluntary movements.

It will be seen from this case that the patient's symptoms point to a widespread disturbance of function in the central nervous system, and that there can be little doubt that they were in great part, if not wholly, due to organic lesions conditioned by the state known as thermic fever or heat stroke. That being so, it is of interest to inquire in how far different parts of the nervous system were differently affected.

In the first place it must be noted that some of the abnormal phenomena presented by the patient appear to be similar to those usually described as "functional." These phenomena are small in number, and at the time when the case came under the observation of the writer, consisted in slight constriction of the visual fields, loss of the senses of smell and taste, and analgesia of certain cutaneous areas (it is indeed possible that organic changes determined the alteration of special senses). The athetoid movements observed at one stage of the illness may possibly also have been of a functional character.

In the second place other of the phenomena were similar to those associated with definite organic lesion of the cerebrum. If the general views concerning the central mechanism of epilepsy be accepted, the epileptiform convulsions exhibited by the patient shortly after his seizure would point to an early disturbance of the cerebrum. That this disturbance was not a mere transient one due to high fever, but left a permanent after-effect, is shown by the occurrence of spastic paralysis and by the persistence of the abnormal extensor plantar reflex for many months after the heat stroke.

The various disturbances of speech point to a widespread interference with the cortical mechanism or possibly to a disturbance of the mechanism in the medulla oblongata, while the weak-mindedness, which so struck his parents, would seem also to point

to a widespread cortical disturbance. It is at any rate possible that the athetoid movements were due also to an interference with the nervous mechanism in the cerebrum and basal ganglia. There can, therefore, be little doubt that many of the patient's earlier symptoms were due to organic cerebral lesions of the cerebrum, although at the time when the patient came under observation these symptoms had in large part disappeared. In the third place the residual symptoms which chiefly characterised the patient's condition when he came under observation seem to be referable to organic lesion of the cerebellum.

Previous observers have described various symptoms as characteristic of organic lesion of the cerebellum, but there is on the whole little unanimity between them. Of these symptoms, incoördination of voluntary movement is the most prominent ; it is not accompanied by any disturbance of postural sense in the limbs, nor is it increased, or is but slightly increased, when the patient's eyes are closed. It is said not to apply to simple voluntary movements, but is seen chiefly in the more complicated movements, which are compounded of the simpler.

Abstracts

PHYSIOLOGY.

SOME CONSIDERATIONS ON THE MOTOR CORTICAL CENTRES.

(83) **(Alcune considerazioni sui centri corticali di moto.)** E. SALKIND, *Riv. Ital. di Neurop., Psichiatr. ed Elettroter.*, 1918, xi., p. 51.

SALKIND recently described a case of dissociated cortical paralysis which was more limited in its topographical distribution, not only than segmental cortical paralysis, but also than the so-called pseudo-radicular cortical paralysis. The patient, after a penetrating wound of the skull in the upper part of the right parietal region, presented as permanent disturbances a slight paralysis of the right hypoglossus, a paresis of the left facial, and a well-marked paralysis with tendency to contracture of the extensors of the last two fingers of the left hand, in addition to certain sensory disturbances.

The patient thus presented a paralysis which, in its topographical distribution, exactly corresponded to a fascicular paralysis, but with the important difference that it was of peripheral and not central origin.

Salkind has therefore given the name of pseudo-fascicular cortical paralysis to this condition, which was described by Pierre Marie by the name "mains corticales" before Salkind had become cognisant of Marie's description. Salkind concludes that in the cortex there are three varieties of centres, viz., segmental, radicular, and fascicular, but that they should not be regarded as essentially distinct from one another. As the result of well-known experiments and numerous clinical facts, a predominating value should be assigned to the segmental centres, but they are probably constituted by a combination of smaller centres, which under normal conditions acts as a whole, the components not always working in an equal degree. Under certain circumstances (exercise) these smaller centres may acquire a certain independence, which becomes still more obvious in some pathological conditions when a dissociation takes place in the segmental centres, with the result that the radicular and fascicular centres which form part of it come into action. J. D. ROLLESTON.

THE CIRCUMSCRIBED CORTICAL LOCALISATION OF THE MACULA.

(84) **(Localisation cortical circonscrite de la macula.)** SOUQUES and C. ODIER, *Rev. Neurol.*, 1917, xxiv., Aug.-Sept., p. 45.

THE authors consider the question as to whether there is a circumscribed macular centre, or whether it is spread out over

the cortical vision area. The views of Henschen, and of Pierre Marie and Chatelin in favour of the former views are discussed, and the opposing views of Dejerine. A case is reported of macular hemianopia, and two paramacular scotomata, one of which on the left side was both macular and paramacular, while the right was paramacular. Visual acuity was good, and the optic discs were normal. The bullet had entered the right occipital lobe, and followed an oblique course to the anterior part of the left occipital lobe. The destruction of the posterior part of the right occipital explains the macular hemianopia, and presumably the macular visual centre is in the part of the lobe destroyed. On the contrary, the lesion of the left lobe does not interfere with the left macular cortical centre, and in consequence the vision in the right macular field is intact. The authors hold that this is proof in favour of a circumscribed cortical centre for the macula. These facts also support the theory of the partial decussation of the macular fibres, and the existence of a macular chiasma similar to that of the optic fibres. It is impossible as yet to say exactly where the macular centre is, except that it is on a level with the posterior part of the occipital lobe. There was no autopsy.

D. K. HENDERSON.

CHRONAXIE IN MAN. (La chronaxie chez l'homme.) GEORGES (85) BOURGUIGNON, *Rev. Neurol.*, 1917, xxiv., p. 162.

IN electro-diagnosis the velocity of excitability of a muscle has been found to be of practical importance in determining the degree of degeneration of the muscle. Velocity of excitability may be measured by the minimum duration of the passage of a galvanic current necessary to produce the threshold of contraction with the minimum intensity (for an indefinite duration of passage). Lapicque determines the threshold of excitation for a current of indefinite duration, and this he terms the rheobase, or rheobasic threshold. He gives the term chronaxie to the minimum duration of passage of a current twice the intensity of the rheobase. Chronaxie depends only on excitability. In the normal it is only influenced by temperature.

To reckon the velocity of excitability the discharge of condensers of known capacity is employed. D. K. HENDERSON.

PSYCHOLOGY.

THE INFLUENCE OF WARS ON THE PSYCHOLOGY OF THE (86) **TIMES.** CHARLES K. MILLS, *Amer. Journ. Insan.*, 1918, April, p. 625.

AN interesting general paper discussing the psychology of the different nations engaged in the present war. D. K. HENDERSON.

THE RELATION OF PSYCHOLOGY TO MILITARY ACTIVITIES.
(87) R. M. YERKES, *Mental Hygiene*, 1917, i., July, p. 371.

THE psychologist should be of use in classifying men according to their mental characteristics, and of indicating their degree of adequacy for military training, or special tasks in military organisation. The examining psychologist should aid in the elimination of those who cannot safely render service worthy of their hire, and should refer to the medical expert those showing psychopathic conditions. A psychological examination would seem to be of special importance in gunnery and aviation recruits. The tests being used are not described. D. K. HENDERSON.

PATHOLOGY.

THE EFFECTS OF HIGH EXPLOSIVES UPON THE CENTRAL NERVOUS SYSTEM.
(88) E. E. SOUTHARD, *Mental Hygiene*, 1917, i., July, p. 397.

A SHORT review of Mott's Lettsomian lectures and of Elliot Smith's "Shell-Shock and its Lessons." D. K. HENDERSON.

SPINAL CORD, &c.

HERPES FOLLOWING TRAUMA OF THE DORSAL REGION OF THE SPINE. (Zona consécutif à un traumatisme de la dorsale colonne.)
(89) R. BOURSIER and R. DUCASTAING, *Rev. Neurol.*, 1917, xxiv., p. 294.

AN interesting case report of a soldier who was wounded in the dorsal region of the spine by a bursting shell. The X-ray examination ruled out any spinal injury. Ten days later, on dressing the wound, a herpes was found to have developed, which was localised to the right side extended from the ninth dorsal to the first lumbar vertebra, and in front from two fingers' breadths above the xiphi-sternum to two fingers' breadths above the umbilicus. The whole area was hyperæsthetic. There was loss of power in both lower limbs, and Babinski's sign was present on the right side. Thermal sense was totally absent over the lower limbs. D. K. HENDERSON.

ON WAR INJURIES OF THE VERTEBRAL COLUMN. (Sui traumi di guerra alla colonna vertebrale.)
(90) G. D'ABUNDO, *Ric. ital. di Neuropat., Psichiatr. ed Elettroter.*, 1918, xi., p. 1.

A RECORD of nine cases of war wounds of the cervical, dorsal, or lumbar region of the vertebral column. The occurrence of the

cases in healthy and vigorous subjects, the definitely segmental syndrome resulting from the trauma, and the tendency of the morbid changes to be confined to a spinal area all confirm the segmental doctrine of nervous pathology which D'Abundo has maintained in his writings from 1906-1911. A remarkable fact was the tenacious organic resistance of patients with severe spinal lesions following wounds of the vertebral column. This is to be explained by the absence of an infective factor, and by the fact that the patients did not, as in ordinary spinal diseases, have a nervous system specially predisposed as the result of severe hereditary or acquired conditions.

The writer never found an association of functional hysteroid symptoms. As in the case of the neuropathic conditions following the earthquake in Sicily in 1908 (*v. Review*, 1909, vii., p. 284), he noticed that patients found resignation easier when they saw that others were also suffering like themselves.

J. D. ROLLESTON.

CAMPTOCORMIA. Vertebral curvature. (Camptocormie. Plicature vertebrale.) INNA SALOFF, *Thèses de Paris*, 1916-17, No. 108.
(91)

CAMPTOCORMIA is the name given by Souques to a permanent forward curvature of the trunk combined with extension of the head.

It is due to a muscular contraction (not contracture) principally involving the abdominal muscles (rectus obliquus and transversalis), the lumbar portion of the erector spinæ, and in some cases the psoas. It occurs in soldiers on active service after various "accidents" (shell explosions with or without trauma of the lumbar region, wounds of the trunk of various characters and positions, rheumatic pains, fatigue, &c.).

Its clinical features are as follows:—

1. It is not accompanied by any organic lesion of the vertebral column or nervous system.

2. It is corrected spontaneously by the horizontal decubitus on a resisting surface.

3. It is cured by the influence of a treatment (plaster jacket, electric current) which acts exclusively by suggestion.

Camptocormia is therefore a functional or pithiatic attitude occurring in predisposed subjects. J. D. ROLLESTON.

CROSSED PARALYSIS. (Syndrome de paralysie alterne.) E. VILLARD and A. HALIPRÉ, *Rev. Neurol.*, 1917, xxiv., June p. 288.
(92)

THE patient was stabbed in the right lateral cervical region, his right cervical sympathetic and right pneumogastric nerves were severed, and a portion of his right internal jugular had to be

resected and ligatured. He showed a paresis of the left arm, a paralysis of lower face of central origin, a paralysis of the right cervical sympathetic with exophthalmos and myosis, and a right recurrent laryngeal paralysis. He improved rapidly, and six months later showed: On the left, paralysis of lower face with atrophy of the left half of the tongue, paralysis of the area supplied by the buccal branch of the facial, tongue protruded to the left, atrophy of the left half of the tongue. The upper face was not involved. On the right the palpebral fissure was smaller, slight ptosis of the upper eye-lid, exophthalmos. The right pupil was smaller than the left, but the reaction was normal (Bernard-Horner syndrome).

The symptoms were really divisible into two groups: those of peripheral origin in direct relation to the traumatism, and those of central origin due to circulatory disorders in the right hemisphere from ligature of the internal jugular. Clinically the case is similar to the syndrome described by Babinski and Nageotte.

D. K. HENDERSON.

(93) **DELAYED HEMIPLEGIA FOLLOWING WOUNDS IN THE CERVICAL REGION. (Les hémiplégies tardives consécutives aux blessures de la région cervicale.)** H. VERGER and R. RENAUD, *Rev. Neurol.*, 1917, xxiv., June, p. 281.

MEDICO-LEGALLY the study of these cases is of importance, and in consequence four interesting cases are reported.

Case 1.—A soldier, 21 years, in November 1914 received a shrapnel wound in the right clavicular region, with fracture of clavicle and arterial hæmorrhage. For two months there was almost a total paralysis of the right arm, and then recovery. The patient returned to the front, but on 6th January 1916 he was slightly concussed by a shell explosion. Two days later, on dismounting from his horse, he fell, had a slight convulsion without loss of consciousness, and developed immediately a complete left-sided hemiplegia. The Wassermann reaction was negative, and specific treatment did not cause any improvement. Above the right clavicle, and to the outside and behind the clavicular insertion of the sterno-mastoid, there was a small expansile swelling which was synchronous with the pulse. The right pulse was smaller than the left, and he had a feeling of numbness in the right hand. There was no evidence of heart trouble, syphilis, brain tumour, or hæmorrhage.

Case 2.—A soldier, 23 years, on 7th September 1914 was wounded by a bullet in the right carotid region, and a fortnight later showed a left hemiplegia. The Wassermann reaction was

negative, and specific treatment was of no avail. His condition has been stationary.

Case 3.—A soldier, 23 years, on 31st August 1914 was wounded by a bullet in the right cervical region. Almost four months after his wound, without prodromal symptoms, he had a convulsion with loss of consciousness, and developed a left hemiplegia. The Wassermann reaction in this case was positive, but there was no heart nor kidney lesion, and no syphilitic stigmata.

Case 4.—A soldier, 21 years, two days after a wound in the right cervico-facial region, injuring the internal carotid, developed a left hemiplegia. D. K. HENDERSON.

BRAIN, SKULL, &c.

GENERALISED LOSS OF TENDON JERKS IN CRANIAL
(94) **INJURIES. (Areflexie tendineuse généralisée chez les blessés du crane.)** SOUQUES, *Bull. de l'Acad. de Méd.*, 1918, lxxix., 5 Mars, p. 194.

SOUQUES has observed five cases of generalised loss of all, or almost all, of the tendon jerks after cranial injuries: he believes it is due to a traumatic meningitis affecting the dorsal roots in the region of the "nerf radiculaire," either by means of infective processes, or by compression resulting from hypertension of the cerebro-spinal fluid, or by a combination of these two pathogenic factors. In all the cases there was an absence of those symptoms which commonly accompany abolition of reflexes, viz., pains, anæsthesia, hypotonia, in-coördination, or palsies. He urges that in all cases of cranial injuries the tendon jerks should be examined, and that, if they be abolished, a careful examination into the question of a possible meningeal infection should be made.

LEONARD J. KIDD.

CLINICAL CONSIDERATIONS ON WAR WOUNDS OF THE
(95) **HEAD. (Considerazioni cliniche sui traumi di guerra al capo.)** G. D'ABUNDO, *Riv. ital. di Neuropat., Psichiatr. ed Elettroter.*, 1917, x., p. 357.

A RECORD of thirty-four cases which gave rise to the following considerations: D'Abundo frequently noticed that in head wounds consciousness was not lost, or only for a few moments, after very severe fractures of the skull. He further noted the rarity of loss of memory of events immediately preceding the trauma, although there was loss of consciousness of long or short duration. In wounds of the head in peace time, on the other hand, not only is there frequently loss of consciousness, but there is also retrograde,

or anterograde amnesia, or both associated. D'Abundo attributes the preservation of memory in these cases to the psychological state of the soldiers in the front line, and especially the continuous cerebral tension in consequence of which the smallest details in their state of expectancy of danger were photographed upon their consciousness.

In ordinary life, on the other hand, in which an injury to the head occurs unexpectedly, retrograde amnesia may occur because the individual was hit unexpectedly, so that events of little interest vanish from his consciousness.

Another interesting observation made by D'Abundo on his patients was that when craniectomy was not considered necessary owing to the absence of motor disorders, although fracture of the bone was present, there were at least fourteen cases which showed symptoms of neurasthenia which were remarkably persistent.

The question, therefore, arises whether in cases of fracture of the skull it would not be advisable as a preventive measure to trephine at once, or if trephining has not been performed and the neurasthenic symptoms persist, a later operation should not be undertaken. J. D. ROLLESTON.

APHASIA IN WAR TIME. (**Les aphasies de guerre.**) PIERRE (96) MARIE and CH. FOIX, *Rev. Neurol.*, 1917, xxiv., Feb.-Mar., p. 53.

IN war time the cerebral lesions are often so focal and so well delimited that the cases become of great interest not only clinically, but also from the anatomo-physiological point of view. Such localised, isolated syndromes are rarely met with in cases of hæmorrhage and cerebral softening. It is impossible to do justice to this paper in an abstract, but several of the most important conclusions may be mentioned:—

1. In the brain there are two very distinct zones, the one anterior, the anarthric; the other posterior, the aphasic, properly so-called; between these two there is a mixed zone which gives rise to "aphasie globale," or aphasia of the type of Broca.

2. The anarthric zone is the lower one-third of the ascending frontal convolution, encroaching slightly on the posterior end of the second and third frontal convolutions. It covers over the insula, and lenticular nucleus. The third frontal convolution does not play an essential rôle in the function of language.

3. Among the anarthric syndromes one can distinguish several types: (*a*) complete recovery, or apparently complete, corresponding to the more anterior lesions; (*b*) a remaining dysarthria, with often slight aphasic symptoms corresponding to the more posterior lesions; (*c*) slow scanning speech, with general retardation corre-

sponding to the more superficial lesions and resembling conditions seen in deep lesions of the anterior frontal region.

4. The aphasic syndromes have a graver prognosis. Following the period of absolute loss of speech, there is a stage when aphasic disturbances are in the foreground along with a general intelligence deterioration.

The symptoms characteristic of each special syndrome are described in detail, and are also tabulated in the summary.

D. K. HENDERSON.

THE RECOVERY OF FIELDS OF VISION IN CONCUSSION
(97) **INJURIES OF THE OCCIPITAL CORTEX.** M. L. HINE, *Brit. Journ. of Ophthalmol.*, 1918, ii., Jan., p. 12.

THIS paper deals with field of vision defects in *concussion* injuries of the occipital cortex, that is, injuries of the nature of bruising without actual laceration or wounding. Notes are given of five cases of this type and of two others, one of which was mainly functional, while the other had a slight laceration of the brain substance. Of the five concussion cases, fracture of the skull was demonstrable in three, scalp wounds only in two.

Observations were made with a hand perimeter, and in some cases with Bjerrum's screen. The test objects were 10, 5, and 2 mm. in diameter. The main points ascertained were as follows:—

1. Hemiopia caused by injuries at or near the occipital pole is usually complete, dividing the macular area, in contradistinction to the hemiopia caused by vascular lesions in civil life, in which the macular area usually escapes.

2. The visual fields gradually recover from centre to periphery. A scotoma caused by loss of cerebral substance gradually contracts from periphery to centre as the surrounding œdema of the brain subsides.

3. The visual field usually returns in the upper quadrant before the lower.

4. Restoration of function is at first incomplete; when it has commenced it proceeds in a definite order, colour perception coming after the perception of white, even though the coloured object is the larger. As recovery proceeds, colour vision becomes more acute and extends over an enlarging area of the field.

5. It is important to use small coloured objects in order not to miss partially recovered lesions.

6. In more slowly and steadily recovering cases with subdural or extradural hæmorrhage, there seemed to be no separation between appreciation of coloured and of white test objects.

In common with other work on defects in the visual fields in occipital lesions, this paper is of great interest in opening up

a practically new subject. The value of work of this kind would be further enhanced by the adoption of a systematic method of perimetric examination and recording of results.

H. M. TRAQUAIR.

DISSOCIATION OF VISUAL PERCEPTIONS DUE TO OCCIPITAL INJURIES, WITH ESPECIAL REFERENCE TO APPRECIATION OF MOVEMENT. GEORGE RIDDOCH, *Brain*, 1917, xl., pt. 1.

(98)

RIDDOCH has examined the fields of vision in a number of cases of occipital injury, and his main theses are as follows:—

1. Movement may be recognised as a special visual perception.
2. Appreciation of movement returns before the object as such is recognised, if recovery of vision is occurring.
3. Recovery of vision for movement begins in the peripheral field.
4. Charts of the fields for appreciation of movement are valuable in prognosis.
5. The dissociations of visual perceptions are analogous to those found in disturbances of somatic sensibility in cases of cerebral injury which have been so ably studied by Head and Holmes.

The tests used were:—(1) The rough finger test; (2) M'Hardy's perimeter; (3) Bjerrum's screen. With the perimeter the usual test object was a 1 cm. white disc, but both black and white discs up to 15 cm. were used.

The cases are divided into several groups.

Group 1 contains five cases showing only perception of movement in the affected part of the field in addition to some perception of light.

Group 2 contains four cases in which a greater or less degree of vision returned both for "object and movement stimuli."

Group 3 contains one case in which the "object and movement fields" coincided, there being no dissociation and no recovery of vision in the affected part of the field.

The chief points illustrated by the ten cases are the recovery of vision for movement first of all in the previously blind area, and the commencement of this recovery in the peripheral field; appreciation of movement and recognition of an object were always dissociated in patients whose vision could be shown to be recovering, the field for the former being the larger. Such dissociation is valuable in prognosis, its presence indicating possible recovery, its absence after a few months indicating permanence of the defect. Lastly, the relative sizes of the object and movement fields were the same with test objects

of 1 cm. or 15 cm. diameter, either black or white used against a black background.

A detailed description is given of one case in which visual orientation and stereoscopic recognition were lost. There was a partial left homonymous hemiopia, with escape of the central area. The wound of entry was on the left frontal region; there was no exit wound, and a shrapnel bullet was found inside the skull, near the right occipital pole. Although binocular vision was present, the patient could not localise objects, or tell which of two objects was the nearer to him, nor could he appreciate visually the depth and thickness of objects.

The last section of the paper deals with the situation of the lesions.

Evidence in support of the findings of Holmes and Lister in connection with the localisation of vision in the occipital cortex is provided by some of the cases.

Amongst his conclusions, the author states that movement should be regarded as a stimulus capable of originating visual perceptions, and that, in a recovering visual field, the field for movement charted at intervals gives the earliest indications of recovering vision.

The five propositions stated at the beginning of the paper are regarded by the author as substantiated.

Apart from its general interest, this paper points the way to further investigations in connection with the mechanism of visual perception. The value of the successive stimulation of the retinal percipient elements by a moving test-object in field defects, due to various lesions of the visual paths, has long been known and utilised for prognostic purposes by ophthalmologists. It is a little difficult to understand how "movement" *per se* in this connection is to be differentiated from an illuminated moving object. H. M. TRAQUAIR.

SENSORY AND MOTOR DISORDERS. (Troubles sensitifs et moteurs.) C. J. PARHON and EUG. VASILIU, *Rev. Neurol.*, 1917, xxiv., April-May, p. 156.
(99)

A SOLDIER, 23 years old, was wounded by a bullet in the left parietal region, and a bony depression was caused. There was no loss of consciousness, but there was a transitory total blindness and a more permanent right-sided deafness. Immediately after the accident he developed a numbness in the right upper limb and a tremor of the Parkinsonian type which, however, was localised to the right little and ring fingers, and slightly to the middle finger. There was a marked diminution of tactile sense in the little and ring fingers, and poor localisation; the

middle finger was affected to a less extent. A decompression was done, the bone was elevated, the tremor disappeared, but the sensory and motor disorders persisted. The case is interesting owing to the strict ulnar localisation of the disorder, and owing to its bringing up the question of the possible cortical localisation of the Parkinsonian tremor. D. K. HENDERSON.

A CASE OF ETHMOIDAL INJURY ASSOCIATED WITH PAPILL-
(100) **ŒDEMA, ABDUCENS PALSY, AND OTHER OCULAR LESIONS.** F. W. WATKYN-THOMAS and R. L. SCOTT, *Brit. Journ. of Ophthalmol.*, 1917, i., Aug., p. 484.

IN March 1917 the patient was struck below the right eye by a shell fragment; since then the vision of that eye had been dim. A fortnight later the eyelids became swollen. Vitrous hæmorrhages, with engorgement of the retinal vessels and papillœdema, were present. The pupil reacted sluggishly and the eye movements restricted. A skiagram showed a small fragment of metal in the region of the ethmoid. The ethmoid was explored, but no pus was found either in it or in the orbit. During the manipulations the shell fragment fell down into the antrum. Recovery ensued, with good vision about a month after the injury. It is stated that there was greatly increased tension along with the papillitis, but unfortunately no details are given in regard to this point.
H. M. TRAQUAIR.

PAPILLŒDEMA IN RELATION TO GUNSHOT FRACTURE OF
(101) **THE MANDIBLE.** G. F. C. WALLIS, *Brit. Journ. Ophthalmol.*, 1917, i., Aug., p. 492.

WALLIS'S patient was injured by a bomb explosion in April 1916. There were thirty wounds, one of which extended from the left malar bone downwards and backwards to the sternomastoid muscle, shattering the ramus of the lower jaw. Owing to the development of a corneal ulcer it ultimately became necessary to remove the right eye. The left eye had been slightly injured. Fragments of bone were removed from the jaw wound from time to time. After about eight weeks the fever recurred and headache and sickness developed, followed by papillœdema in the left eye. The swelling began to subside in October; finally complete recovery ensued, with full vision and normal field. The author considers that the papillœdema was caused by a local meningitis brought about by infection through a fracture of the glenoid fossa. The actual occurrence of the infection was probably due to the disturbance caused by the removal of the sequestra. H. M. TRAQUAIR.

NERVES.

WAR TRAUMAS AND CONTRACTURES. (Traumi di guerra e
(102) **contratture.)** C. RIZZO-LEONTI, *Riv. ital. di Neuropatol., Psichiatr. ed Elettroter.*, 1917, x., pp. 297-316.

THE paper contains short histories of thirty-three cases in soldiers presenting the characters of reflex paralysis or contracture, viz., atrophy, vasomotor and thermal symptoms, hyperidrosis, hypotonus, neuromuscular mechanical hyper-excitability, and fibro-tendinous retractions, &c.

Unlike Babinski, the writer thinks that these cases are amenable to psychotherapy, whereas passive movements may give rise to irreparable damage. J. D. ROLLESTON.

THE CUTANEOUS REFLEXES IN FUNCTIONAL PARALYSIS
(103) **WITH ANÆSTHESIA. (I riflessi cutanei nella paralisi funzionale con anestesia.)** C. RIZZO-LEONTI, *Riv. ital. di Neuropatol., Psichiatr. ed Elettroter.*, 1917, x., pp. 317-324.

A RECORD of three cases of functional flaccid hemiplegia in soldiers in whom abolition of the plantar reflex accompanied anæsthesia of the sole.

The hot bath test proposed by Babinski did not cause return of sensibility or reappearance of the plantar reflex. On the other hand, the abdominal and cremasteric reflexes were present, although the area to which the stimulus was applied to produce it was anæsthetic. J. D. ROLLESTON.

DEFORMITY OF THE THUMB IN ULNAR PARALYSIS. (La dé-
(104) **formation du pouce dans la paralysie cubitale.)** F. LÉONARD, *Thèses de Paris*, 1916-17, No. 94.

ULNAR claw-hand is not the only characteristic feature of paralyses of the ulnar nerve. Jeanne (de Rouen) has shown in three distinct publications in 1896, 1902, and 1915 that a deformity of the thumb is sufficiently frequent to form part of the syndrome of ulnar paralysis. This deformity consists principally in the flexion of the second phalanx to a more or less obtuse angle, while the flexion of the first phalanx diminishes or even disappears. The degree of deformity varies from a slight flexion of the end of the finger, or even an inability to keep the thumb hyper-extended to a resemblance to a hook, which is chiefly met with in inveterate or associated paralysis.

This "sign of the thumb" is caused by paralysis of the adductor pollicis in which the deep branch of the ulnar nerve ends. Although ulnar paralysis is sufficient in itself to produce

an intense deformity, the latter is more likely to occur when there is also paralysis of the median.

Ulnar paralysis may also be accompanied by two less constant signs: 1. Exaggerated abduction of the metacarpus. 2. Laxity of the metacarpo-phalangeal joint, which may amount to a paralytic subluxation when the antagonists of the adductor pollicis contract.

The thesis contains the histories of eighteen cases, thirteen of which are original. J. D. ROLLESTON.

EXCESSIVE MUSCULAR REACTION TO PAIN IN THE COURSE OF REGENERATION OF NERVES. (Surréactivité musculaire a la douleur, au cours de la régénération des nerfs.) ANDRÉ-THOMAS, *Compt. Rend. Soc. de Biol.*, 1918, lxxxi., 13 Avril, p. 376.

(105)

ON many occasions lately André-Thomas has observed that, during the course of regeneration and restoration of function of divided nerves, muscular contractions are provoked by painful stimuli, such as pin-prick or pinching, and localised exclusively in the atrophied muscles supplied by the injured nerve; sometimes a stimulus supplied to another nerve-area can do this, *e.g.*, of skin over thenar eminence in a case of ulnar nerve section. The contractions may be abrupt or slow: a single stimulus may produce them, but more commonly a series of pricks. They are commonest in cases of the hand muscles, but may occur after injury of the sciatic nerve. Though one is tempted at first to regard this over-reaction of muscles as of reflex origin, the writer thinks it is a more complex process, and possibly the sympathetic system plays a part in it. LEONARD J. KIDD.

A TEST OF RECOVERY OF RADIAL PARALYSIS. (Test de guérison de la paralysie radiale.) A. HALIPRÉ, *Rev. Neurol.*, 1917, xxiv., Feb.-Mar., p. 87.

(106)

IN estimating whether a radial paralysis has been cured two factors must be taken into consideration: (1) the extent of movement, (2) the muscular power. The *oath position* of Pitres, consisting of extension of the wrist and separation of the thumb, shows when the full extent of movement has returned. In addition, however, the author describes a sign which he calls "signe des flechisseurs," which allows one to estimate whether the muscular power has returned. If the patients are placed in the *oath position*, and if then the patient is told to grip the examiner's hands—on the healthy side the grip is made with force and with slight hyper-extension of the wrist, on the affected side drop wrist immediately ensues as the extensors are unable to sufficiently resist the action of the flexor muscles. This sign, then, enables one to estimate the true functioning power of the muscles. D. K. HENDERSON.

INJURIES TO THE PERIPHERAL NERVES AND THEIR TREAT-
(107) **MENT.** Sir BERKELEY MOYNIHAN, *Surg., Gynæcol., and Obstetrics*, 1917, xxv., Dec., p. 595 (13 figs.).

SUMMARY:—

1. The earliest examination should be made of all wounds in which division of a nerve-trunk is probable. If at the casualty clearing station such a lesion is found, end-to-end suture should be adopted forthwith. This is more likely to be possible in cases where primary suture of the wound, after incision, is found practicable.

2. If secondary suture of the wounds, after the Carrel-Dakin method has been practised, is to be undertaken, the union of divided nerves should be secured at the same time.

3. If these methods have been attempted and have failed, they do not prejudice the later union of the nerve. On the contrary, they probably ensure that an easier and more satisfactory operation can then be practised.

4. Throughout the whole period before late nerve suture is attempted, the strictest attention must be paid to the relaxation and nutrition of all paralysed muscles, to the maintenance of suppleness in all joints moved by these muscles, and to the preservation of the integrity of the skin.

5. Operations on nerve-trunks demand the most scrupulous observance of the ritual of asepsis. There must be the greatest gentleness of manipulation; the nerve must not be injured by instruments or by the surgeon's fingers; it must not be separated from its sheath or disturbed overmuch from its bed; it must not be chilled or allowed to dry. All sutures must be of fine catgut, and be introduced with most punctilious accuracy. Axial rotation of the nerve must be avoided. The cut ends of the nerve before approximation must show clearly the fibres of which the trunk consists.

6. Nerve grafting is of little or no value; nerve anastomosis is to be sharply condemned; the turning down of flaps from the nerve to bridge a wide gap is useless.

7. Tendon transplantation is of great value in cases where nerve suture is impossible, or where suture has given a result not entirely satisfactory. LEONARD J. KIDD.

"SHELL SHOCK."

THE CARE AND TREATMENT OF MENTAL DISEASES AND
(108) **WAR NEUROSES ("SHELL SHOCK") IN THE BRITISH ARMY.** THOMAS W. SALMON, *Mental Hygiene*, 1917, Oct., i., No. 4, p. 509.

TAKEN together, these disorders are responsible for one-seventh of all discharges for disability from the British army, or one-third if

wounds are excluded. Dr Salmon has made a survey of the prevalence and treatment of these conditions in England so that his experience might be a guide and help in drawing up plans for the United States forces. In regard to the prevalence of the war neuroses, it is stated that the rate among the expeditionary forces is not less than 10 per thousand annually, and among the home forces not less than 3 per thousand. Special emphasis is laid on treating cases where possible at casualty clearing stations, as numerous writers have reported most excellent results when the cases are received in their incipiency. The question of recovery must depend largely on the insight shown by the medical officer under whose charge the patients come, and his resourcefulness and skill in applying treatment. Non-productive occupation should be avoided, and an attempt should be made to have occupation departments in the nature of carpenter shops, machine shops, tailor shops, printing shops, &c. Emphasis is also laid on the usefulness of hydrotherapy, electrotherapy, concrete swimming tanks, &c. The lesson to be learned from the British results seems clear—the treatment by medical officers with special training in psychiatry should be available just as near the front as military exigencies will permit, and that patients who cannot reach this point should be treated at special hospitals in France until it is apparent that they cannot be returned to the firing line. Neurologists should have a psychiatric outlook, and the psychiatrists should be familiar with neurological technic. No soldier suffering from functional nervous diseases should be discharged from the army until at least one year's special treatment has been given. A plan has been drawn up for the establishment and equipment of psychiatric units in France.

D. K. HENDERSON.

THE MANAGEMENT OF WAR NEUROSES AND ALLIED DISORDERS IN THE ARMY. Sir JOHN COLLIE, *Mental Hygiene*, 1918, Jan., Vol. II., No. 1, p. 1.

(109)

AFTER being sent "down the line," the nervous patient is admitted to a casualty clearing station, where he remains until his transfer to a special shock hospital is arranged for. Neurological centres have been established both by the French and English War Departments immediately behind the fighting line. Here quick returns are the order of the day. The cases are hot from the battlefield, and frequently men are returned to the fighting line in two or three weeks. There is a special shock hospital for each army area. If the case is not likely to recover soon, he is sent to a base hospital, and transferred to England.

Re-education is the key-note of the treatment for shell shock. A healthy and invigorating environment is everything, but each case demands individual attention; nothing in the nature of so-called psychoanalysis is necessary. Isolation in the first instance, and then work in one form or another, is the only salvation for those who are suffering from functional nervous disease. The percentage of pensioners now suffering from functional nervous disease is roughly 20 per cent. In connection with these cases, homes of recovery have been organised in different parts of the country for the institutional treatment of these cases. An outline is given of the methods in use at the Golders Green Home. The principal methods adopted are:—

1. An attempt to gain the confidence of the patient, and teach him to believe that he will recover, and continuous and painstaking efforts to persuade him to adopt an optimistic frame of mind.
2. The usual remedial methods, such as massage and electricity.
3. Outdoor work and recreation.

D. K. HENDERSON.

SOME OF THE NERVOUS AND MENTAL CONDITIONS ARISING IN THE PRESENT WAR. (110) E. MURRAY AUER, *Mental Hygiene*, 1917, i., July, p. 383.

A SHORT general account of some of the phenomena more commonly met with. The necessity for the employment of trained neurologists and psychiatrists is emphasised.

D. K. HENDERSON.

HYSTERICAL TALIPES EQUINUS. (Der hysterische Spitzfuss.) (111) S. JELLINEK, *Wien. klin. Woch.*, 1917, xxx., p. 1453.

HYSTERICAL talipes equinus is caused by isolated spasms of the calf muscles, or of the peroneus longus only, which may last minutes, hours, days, weeks, or longer still.

Phenomena of fatigue do not occur; the muscles feel hard, the tendons stand out sharply, the antagonists are either flaccid or firmly contracted. The skin in the region of the contracted muscles and ankle joint shows diminished sensibility, and both skin and muscles are hypæsthetic or entirely anæsthetic to an electrical current.

Hysterical pes equinus is often associated with supination or pronation, giving rise to equino-varus or valgus respectively. Hysterical pes calcaneus occasionally occurs, but is less frequent and persistent.

Hysterical pes equinus occurs not only in persons who have had a gunshot wound in the leg or foot, but also in those who have suffered from shell shock or bomb explosion, and it may even occur in soldiers who have never been in the field at all.

The attitude is due to a hypersensitiveness and hyperirritability of the calf and peronei muscles, and in other cases to conscious or unconscious imitation of others.

It may be unilateral or bilateral. Sometimes the muscular rigidity involves both lower extremities, or there may be general muscular rigidity and speech disturbances. The prognosis of these cases is quite favourable, provided their nature is recognised early, and proper treatment applied. Many cases have to be examined under an anæsthetic or with the X-rays. J. D. ROLLESTON.

HYSTERIA AS SEEN AT A BASE HOSPITAL. J. L. M. SYMNS, (112) *Practitioner*, 1918, No. 602, Aug., p. 90.

ENGLISH neurologists (following the teaching of Charcot) consider hysteria as being the subconscious representation of the patient's idea of the disease from which he considers himself to be suffering; *e.g.*, the functional paraplegic who has been buried will portray, subconsciously, the symptoms that he would expect to find in a patient whose spinal cord was injured, and the greater his knowledge, the nearer he will get to the signs of an organic paralysis; but how is it that Charcot and his followers have found their stigmata — hemianæsthesia, pharyngeal anæsthesia, concentric narrowing of the visual field, &c.—present in the majority of their cases when the above symptoms are not likely to suggest themselves to the mind of the ordinary patients?

Babinski found that none of his cases showed any signs of those stigmata, and in the great majority of soldiers seen by the author those stigmata were entirely absent. The French neurologists received Babinski's conception of hysteria as being a pathological condition, caused by suggestion, and curable by suggestion.

Captain Symns analyses these stigmata, and shows how they have been found by the followers of Charcot, and not by those of Babinski.

Pharyngeal Anæsthesia.—Major A. F. Hurst found that pharyngeal anæsthesia was found in 15 per cent. of both normal and hysterical subjects. Charcot missed its presence in the normal subject.

Hemianæsthesia, &c.—A number of students who had not yet entered hospital wards were asked to malinger a right hemiplegia. They showed the typical signs of it, but none of them complained of anæsthesia until a leading question was put. No case of hysterical anæsthesia was found in the soldiers at Netley, except in those who had undergone a detailed examination elsewhere.

Visual Stigmata.—All cases examined by the rough finger

method showed normal vision. If "that suggestion machine," the perimeter, was used, stigmata resulted.

Hysterogenic Zones.—These were not found.

If Charcot had looked for other signs he might have handed down to us other stigmata. Major Hurst and the author invented three new signs: Nasal anæsthesia, umbilical anæsthesia, and an outward spiral field of vision. The two former were easily produced. By using the perimeter, and by bringing the object from within outwards, an outward spiral resulted in every case, and even an outward spiral in one eye, and an inward spiral in the other, was produced by reversing the movement.

There are three phases (Roussy and Lhermitte) in the genesis of hysterical symptoms: period of emotional shock (instinct of self-preservation inhibits the emotion); period of meditation; and the period of realisation of the emotional reaction no longer (removal from the field of action) inhibited by the instinct of self-preservation.

The chief types of hysteria met with are:—

1. *Hysterical Gaits.*—The tacking; the pseudo-ataxic; the pseudo-spastic; the unilateral (moves with a lateral swaying movement); and the senile (from injury to back or muscular rheumatism).

The ataxic and tacking gaits in many cases result from the suggested persistence of the vertigo following explosion or burial, in others they are largely emotional. The rigidity in the spastic types may, in some cases, result from the effort to avoid pain, &c., in others it may be the persistence of the rigid attitude of fear.

2. *Hysterical Paralysis.*—Pseudo-hemiplegia, paraplegia, monoplegia, paralysis of an anatomical region or muscular group. (These generally follow trauma, and are spastic or flaccid.)

3. *Hysterical Contractures.*—Club foot; contractures of hand or fingers; contracture of muscles.

4. *Hysterical Tremors.*—Generalised atypical tremors; limited atypical tremors; and typical tremors resembling those of disseminated sclerosis and paralysis agitans. (The fine tremor of exophthalmic goitre is not seen in hysteria, but is invariably associated with the hyperthyroid type of neurasthenia.)

5. *Hysterical Errors of Speech.* — Dumbness (following the emotion of fear); peculiarities of speech-stammering, latent period between words (following shock in trauma); inarticulate (following injury to jaw); whispering (often after laryngitis); associated movement of limb (emotion with fear as a basis).

6. *Hysterical Fits.*—Emotional (rare in the British); pseudo-epileptic.

7. *Hysterical Deafness* (following inability to hear during prolonged bombardment).

8. *Visual Disorders.*—Amaurosis, photophobia, and blepharospasm (from asphyxiating or tear shells, or presence of dust or a foreign body).

9. *Alimentary Hysteria.*—Vomiting (no affection of appetite nor loss of weight); constipation (following local operation or wounds).

10. *Respiratory Hysteria.* — Tachypnœa (sudden respiratory acceleration associated with emotional state).

11. *Disorders of Sphincter Control.*—Incontinence of urine (its persistence after onset during shell shock. Exclude slight lesions of cauda equina). Retention of urine and incontinence of fæces are not observed.

Diagnosis.

Little reliance can be placed on the existence of an interval between the injury and the onset of the nervous symptoms. Rely on absence of organic signs — optic neuritis; optic atrophy; hemianopia; alterations in electrical reactions of muscles and nerves; alterations in the superficial reflexes; loss or great exaggeration or inequality in the deep reflexes; Babinski's flexion of thigh and trunk sign; the pronation sign; the fan sign; the presence of hypotonus; the platysma sign. Hysterical symptoms may be superimposed on an organic lesion.

Treatment.

The great factor is an atmosphere of cure: the patient is placed with others who are now well. In recent gross hysterical lesions, direct suggestion will effect a cure. In old cases continuous suggestion, sometimes for four to eight hours continuously, is necessary, followed by re-education.

At Seale Hayne Military Hospital strong verbal persuasion and intensive re-education is now relied on, whilst electricity and other vehicles of suggestion tend to play a smaller part.

H. de M. Alexander.

(113) **WAR PSYCHOSES: AN ANALYSIS OF TWO HUNDRED AND TWO CASES OF MENTAL DISORDER OCCURRING IN HOME TROOPS.** D. K. Henderson, *Journ. Ment. Sci.*, 1918, April, p. 165.

These men are a heterogeneous group of individuals, all exposed practically to the same situation, but each of whom tended to react to that situation according to his inherent or predisposed constitution. The cases were not clear cut, but frequently formed a composite picture, and included cases of mental deficiency (61); dementia præcox (43); manic-depressive insanity (24); general

paralysis (19); alcoholic insanity (17); traumatic insanity (12); psycho-neuroses (10); paranoid states (8); toxic-exhaustive insanity (3); epileptic insanity (3); organic brain disease (2).

The acute symptoms which necessitated the admission of cases of mental deficiency to hospital were of an exceedingly transitory nature, and here all sorts of superimposed clinical forms may show themselves. In the great majority of these cases the mental defect stared one in the face.

In the United States Army, in times of peace, mental disorders (excluding neurasthenia and hysteria) are responsible for one-fifth of the total discharges of enlisted men, and exceed those for tuberculosis.

The number of nervous and mental cases on our hands is now assuming large proportions, suitable accommodation and treatment for such cases is increasingly difficult to obtain, and the progress of the war has demonstrated how urgent the matter is. Captain Henderson suggests:—

1. That a certain number of mental specialists should be appointed to the recruiting boards, and recruiting medical officers generally should be given definite instructions to pay attention to all cases of probable mental defect or disorder, and refer such cases to the expert.

2. At the large training camps there should be one mental specialist, whose business it would be to examine recruits, and to have those obviously unfit immediately rejected from the army.

3. That suitable recent graduates should be given a special training in psychiatry.

4. That cases showing mental deficiency, neuropathic and psychological traits, and giving a history and showing evidence of severe head injury should, generally, be rigidly excluded from the army.

5. If it is necessary to recruit a few of these individuals, their duties should be confined to work at home or the base in France.

H. DE M. ALEXANDER.

(114) **A RECORD OF ADMISSIONS TO THE MENTAL SECTION OF THE LORD DERBY WAR HOSPITAL, WARRINGTON, FROM 17th JUNE 1916 TO 16th JUNE 1917.** R. EAGER, *Journ. Ment. Sci.*, 1918, July, p. 272.

THE total number of admissions from all military sources during twelve months was 2,429. Of this number 1,466 were discharged; of these 823 went to their homes, 247 were returned to home duty, 224 were transferred to other hospitals, 18 died, and 154 were certified (nearly half of these were general paralytics), and sent to asylums. Those remaining in hospital at the end

of the period amounted to 963 (reduced to 390 four months later).

Among 258 home troop cases admitted, the predominating types of mental affection exhibited were mental deficiency, melancholia, and dementia præcox, in the order named. These men, as a whole, were of a very poor type from the recruiting point of view.

The most numerous types of mental affection exhibited by the 1,652 admissions from France were melancholia, delusional insanity, mental deficiency, and confusional insanity. The trying conditions under which the men live in France accounts for the large number of cases of melancholia admitted from that front.

Of the epileptic cases admitted from France, only one could be classified as being due to trauma.

From other fronts cases were admitted from the Mediterranean, 14; Mesopotamia, 63; Egypt, 141; Salonica, 97; East Africa, 4; Cameroons, 1.

The highest percentage of confusional insanity occurred in the cases from Salonica and France. The Salonica cases were all of the nature of exhaustion psychoses following attacks of dysentery and malaria, and several of these exhibited Korsakow's syndrome. Many of those admitted from the French front were possibly cases of true shell shock, but were classified as confusional insanity owing to the absence of a definite history of shell shock.

Alcoholic insanity accounted for only 1 per cent. of the total admissions. No case admitted originated during war service.

Treatment.—The usual routine asylum treatment was adopted, but the relatively larger proportion of medical staff to patients, and the greater facility for any specialised treatment than is customary in present day asylum practice, largely contributed to the high percentage of recoveries. Agricultural employment and the granting of parole (during convalescence) were largely adopted.

Conclusions.—As all the cases received were in the early stages of mental disorder, a fair comparison with civil asylum statistics as regards the percentage of recoveries cannot be made; and, further, many of the cases would not have been certifiable in civil life. The author's experience, however, amongst this large number of uncertifiable mental cases in the early stages of the disorder convinced him that the treatment of such cases in receiving hospitals, other than asylums, would, if properly and carefully organised, save a large number of cases from certification. The first essential would be an adequate medical staff to give individual attention to each case—the most contented patients were found in the wards where this was given. The official

"walk round" is not the way to help any cases suffering from mental disorder.

The usual tables, illustrative cases of the various types of mental disorder, and a statement showing the results obtained with the Wassermann test in cases of general paralysis, are appended. H. DE M. ALEXANDER.

THE RELATION OF ALCOHOL TO MENTAL STATES, PARTICULARLY IN REGARD TO THE WAR. Sir ROBERT ARMSTRONG JONES, *Journ. Ment. Sci.*, 1918, April, p. 146.

(115)

THE author mentions the physiological and pathological effects of alcohol in health; points out its sphere of usefulness in pathological states as well as the contraindications to its employment; discourses on the therapeutic benefit of the "rum ration"; and quotes statistics showing that the abuse of alcohol is responsible for 20 per cent. of the male, and 10 per cent. of the female annual admissions to asylums.

Alcohol affects the mind in various ways: it may produce the three forms of drunkenness (periodic, dipsomaniacal, and habitual); delirium tremens; Korsakow's psychosis; convulsive, automatic, and violent states (*e.g.*, the brutal excesses of the drunken German troops in Belgium and Northern France); states of chronic hallucinations and delusions, and dementia. There is much in common between all the forms of mental disorder associated with alcohol: there is an individual and racial susceptibility to the drug; and it must be the question of immunity or the vulnerability of the different organs of the body which is the determining factor in producing either of the three types of drunkenness.

Since the passing into law of the Licensing Act, 1903, and for several years up to 1914, there had been a gradual rise in convictions for drunkenness in both sexes: the "Black List" had become a dead letter; and so serious had matters become, that the Liquor Traffic Control Board was instituted in 1915. By the action of this Board drunkenness has decreased by one-half; workers have been healthier; the mass of the people more contented, more reasonable; and they have got through more work. Yet in spite of this the Board's work has been criticised by futile extremists, whose intolerant exhibition of superiority is based upon a form of egoism which borders upon an obsession.

There is an irresistible popular feeling against prohibition (and prohibition breeds vices in regard to drugs, sedatives, and anodynes). If true progress in regard to temperance is to be encouraged, the watchword must be *festina lente*.

There will be many difficulties after the war; the question of the control of drink must be one of the first considerations.

H. DE M. ALEXANDER.

MENINGITIS.

CEREBRO-SPINAL MENINGITIS RESEMBLING INTERMITTENT
(116) **FEVER. (Méningite cérébro-spinale à caractère de fièvre intermittente.)** SERR and BRETTE, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1917, 3 sér., xli., p. 1325.

A SOLDIER, aged 35, after lymphangitis of the foot in April, presented during May, June, July, and August an infective state, characterised during the last two months by sudden rise of temperature with severe lumbar pain. On 11th September slight nuchal rigidity during a febrile attack prompted a lumbar puncture. The spinal fluid was, under hypertension, slightly turbid, and showed an excess of polymorphs. Four injections of anti-meningococcal serum caused disappearance of all the symptoms within a week.

Although the meningococcus was not found in the smears, and the cultures remained sterile, the disease was undoubtedly meningococcal meningitis, as was shown by the leucocyte formula, the absence of glucose in the spinal fluid first withdrawn, and its subsequent reappearance, and lastly the specific action of the anti-meningococcal serum. J. D. ROLLESTON.

PROLONGED SEPTICÆMIA DUE TO A GERM ALLIED TO THE
(117) **MENINGOCOCCUS. PSEUDO-MALARIAL TYPE WITH LATE MENINGEAL LOCALISATION. (Contribution à l'étude de la septicémie prolongée due à un germe voisin du méningocoque. Type pseudo-palustre avec localisation méningée tardive.)** H. AIMÉ and H. CHÉNE, *Paris Méd.*, 1918, viii., p. 118.

A SOLDIER, aged 20, was admitted to hospital with papular erythema, joint pains, and fever, which at first simulated malaria. It was not until about two months after the onset that symptoms of meningitis developed, and the presence of a few diplococci was found in the cerebro-spinal fluid. Recovery took place.

J. D. ROLLESTON.

A CASE OF MENINGOCOCCAL POLYMYOSITIS (DERMO-
(118) **MYOSITIS). (Ein Fall von Polymyositis (Dermomyositis) meningococcica.)** M. LÖHLEIN and H. H. SCHLOSSBERGER, *Med. Klinik*, 1917, xiii., p. 529.

THE patient was a Russian civilian prisoner whose symptoms were extreme tenderness in the muscles, spasmodic flexion of the hips and knees, red discoloration and swelling of the skin of the right

arm, and high fever. Death took place after an illness of fourteen days. The autopsy showed a diffuse, somewhat hæmorrhagic, infiltration of the subcutaneous tissue of the right upper arm. The lesions extended to the deep fasciæ, which were much infiltrated and showed hæmorrhages. A few muscles of the forearm and all the deep muscles of the upper arm showed a pronounced red discoloration and extreme infiltration. The larger vessels of the arm were not affected. The regional lymph glands and lymph glands generally were slightly enlarged, but showed no inflammatory changes. The spleen was small and atrophic. Microscopical examination of the hæmorrhagic fluid showed leucocytes and intracellular diplococci, which on culture proved to be meningococci. All the other muscles of the body were examined, but a positive result was only found in the muscles of the right calf, which showed the same appearances as in the right arm. There was no meningitis nor evidence of gonococcal infection.

J. D. ROLLESTON.

CULTURAL EXPERIMENTS WITH THE MENINGOCOCCUS.

(119) H. WARREN CROWE, *Lancet*, 1917, ii., Aug. 11, p. 201 (illust.).

THE author claims that his "chocolate" medium (which consists of three parts of defibrinated bullock's blood with trypsin agar and 1 per cent. glucose cooked until it becomes a glossy opaque solid medium of a rich chocolate colour) is the most superior for resuscitating the meningococcus under laboratory conditions. It has no advantage over hæmoglobin-trypagar in searching for carriers.

A. NINIAN BRUCE.

GONORRHŒAL MENINGITIS. (Contribution à l'étude de la méningite blennoragique.)

(120) A. BLIND and R. RICARD, *Paris Méd.*, 1917, vii., p. 312.

THE writers record a case in a soldier, aged 30, on which they base the following conclusions:—

1. In addition to the late gonorrhœal meningitis hitherto described there is an early gonorrhœal meningitis.

2. It is infrequent, for there is no other case on record.

3. It is characterised by a septicæmia, a secondary localisation of the infection in the meninges, and by recovery after a localisation of the infection in the urethral mucosa.

4. The cerebro-spinal fluid does not show any gonococci, and presents only a slight lymphocytosis. There is no hypertension.

J. D. ROLLESTON.

PURULENT TYPHOID MENINGITIS. (Eitrige Typhusmeningitis.)
(121) L. R. KORCZYNSKI, *Wien. klin. Woch.*, 1917, xxx., p. 1548.

THE writer refers to the cases of Stühmer (*v. Review*, 1911, ix., p. 267), David and Speik (*ibid.*, p. 326), O'Carroll and Purser (*ibid.*, 1912, x., p. 446), and others, and records a case in a girl aged 9 years, in which the typhoid process was confined to the meninges. Careful examination of the intestinal tract at the necropsy did not show any intestinal involvement. The rarity of meningitis in typhoid fever is shown by the fact that not a single case occurred among 360 typhoid patients admitted to the writer's wards in a hospital at Sarajevo in 1914 and 1915.

J. D. ROLLESTON.

A CASE OF PARATYPHOID B MENINGITIS. (Ein Fall von
(122) **Paratyphus B Meningitis.)** WALTERHÖFER, *Deutsche Med. Woch.*, 1917, xliii., p. 1036.

A SOLDIER, aged 20, contracted paratyphoid B fever. Ten days after the temperature had become normal all the typical symptoms of meningitis appeared. The cerebro-spinal fluid was turbid, and showed paratyphoid B bacilli on several occasions, as well as lymphocytes and polymorphonuclears in almost equal proportions. The blood, urine, and stools were negative. The symptoms subsided on the fifth day, and complete recovery took place.

J. D. ROLLESTON.

TETANUS.

FOURTH ANALYSIS OF CASES OF TETANUS TREATED IN
(123) **HOME MILITARY HOSPITALS during part of October, November, and part of December 1916.** Sir DAVID BRUCE, *Lancet*, 1917, ii., Sept. 15, p. 411.

1. IN the 100 cases of tetanus under review the mortality was 31 per cent.

2. The ratio of the number of cases of tetanus to the wounded has fallen greatly since the beginning of the war, due in all probability to a great extent to the introduction of prophylactic injections of antitetanic serum.

3. The incubation period tends to become longer, hence there are only twelve cases reported with an incubation of ten days or under.

4. Only ten cases are reported to have received secondary prophylactic injections of antitetanic serum in home hospitals.

5. In regard to the therapeutic effect of antitoxic serum the evidence is still inconclusive.

6. The rate of mortality in generalised tetanus is 34·4 per cent., in localised tetanus 0·0 per cent. A. NINIAN BRUCE.

TETANUS SECONDARY TO ORBITO-OCULAR TRAUMA. (Le (124) **tétanos secondaire aux traumatismes orbito-oculaires.**) R. GOETZ, *Thèses de Lyon*, 1915-16, No. 19.

CEPHALIC tetanus secondary to orbito-ocular trauma is relatively rare. Goetz has collected fifty cases, two of which are original. The portals of entry for *B. tetani* are, in order of frequency, the eyeball, orbit, eyebrows, upper lid, lower lid, and conjunctiva.

The symptoms consist of trismus, facial paralysis, and ocular troubles (paralyses or contractures of the eye muscles).

The prognosis of cephalic tetanus of oculo-orbital origin is graver than that of generalised tetanus. The best results are obtained by intravenous or sub-arachnoid injections of tetanus-antitoxin. J. D. ROLLESTON.

CEREBRAL TETANUS, A NEW CLINICAL FORM OF TETANUS. (125) **(Sur une nouvelle forme clinique du tétanos. Le tétanos cérébral.)** LÉON BÉRARD and AUGUSTE LUMIÈRE, *Bull. de l'Acad. de Méd.*, 1917, lxxviii., 18 Déc., p. 744.

IT is generally held that the tetanus toxin spares the cerebral centres, and that the integrity of the intelligence is even an important element in the differential diagnosis between certain forms of tetanus and the meningitides. But during the last years the writers have seen eleven cases of tetanus in which cerebral symptoms, of more or less intensity, were present. These all occurred in wounded patients who had had many injections of anti-tetanic serum. Most of these were cases of late tetanus; the cerebral symptoms usually did not appear till one or two weeks after the tetanic contractures. These symptoms were hallucinations, delirium, agitation and phobia of nocturnal exacerbation: their onset is abrupt, they reach their maximum at once and remain constant for about eight days, and then progressively diminish: usually fifteen to twenty days see their complete disappearance. There is no pyrexia, and the apyrexia has always been constant during the mental attack, except in those fatal cases in which hyperthermia is set up by an associated local infection. As to the reason why these symptoms have not been previously recorded in tetanus, and why they increase in number as cases of tetanus tend to diminish in number, the writers offer this explanation: The fixation of the tetanus toxin is by means of a progressively ascending march; it attacks first the peripheral ends of the nerves, then the cord, then the bulb. The bulbar cases died (until recently) before the higher parts of the brain could be attacked. But owing to our present improved treatment by serum, persulphate of soda, and regional anæsthesia, we can preserve the bulbo-spinal system from fatal involvement, and so

the poison may go on ascending in an attenuated form and affect the cerebral centres. In short, this cerebral form of tetanus, which is the mildest of those forms of tetanic intoxication which involve the nerve centres, proves the value of our methods of anti-tetanic prophylaxis and therapy. LEONARD J. KIDD.

PARTIAL TETANUS AND ITS TREATMENT BY SERUM. (**Les tétanos partiels et leur traitement sérothérapique.**) J. FRICKER, *Thèses de Lyon*, 1915-16, No. 13.
(126)

LATE and partial tetanus localised in the limbs or head in most cases indicates an attenuation of the virulence of the toxin.

The lesser gravity of this form of tetanus is very often due to a previous injection of tetanus antitoxin. Partial tetanus is the form which can be most readily cured by tetanus antitoxin.

The subcutaneous route is to be preferred, as the intravenous and intrathecal routes are most likely to give rise to anaphylaxis. Very small doses (about 5 c.c. daily) are preferable to large doses. Chloral and morphine may be employed as well.

The thesis contains the history of five cases, two of which are original, and one was recently reported by Carnot (*v. Review*, 1916, xiv., p. 234). J. D. ROLLESTON.

A NOTE ON THE REFLEXES IN TETANUS. A. G. GIBSON, *Lancet*, 1917, ii., Sept. 15, p. 424.
(127)

THE author points out that the muscular reflexes in tetanus tend to be increased in the part affected, and it is possible to trace the spread of the disease by a careful study of the reflexes affecting different groups of muscles. He considers antitoxin treatment by the intrathecal route should be pushed until the reflexes return to normal. A. NINIAN BRUCE.

"OXYDOTHERAPY" IN THE TREATMENT OF TETANUS. (**De "l'oxydotherapie" dans le traitement de tetanos.**) BELIN, *Compt. Rend. Soc. de Biol.*, 1918, lxxxi., 23 Févr., p. 172.
(128)

BELIN gives the name "oxydotherapy" to the intravenous or subcutaneous injection of various oxidising substances in various infections. He finds that when a culture of tetanus bacilli is injected into a rabbit, an injection of permanganate of potassium gradually causes the disappearance of the contractures in from thirty to forty-five minutes: this must be done early in the case, however. He has obtained the same results in equine tetanus. In the horse this treatment lessens the acuteness of the symptoms, and even sometimes leads to recovery; but the most definite results are gained when the disease is treated early. The per-

manganate is injected subcutaneously, or intramuscularly, or intravenously. When benefit is gained it is seen very soon after the injection. Belin thinks his results confirm those of Lumière and others with sodium persulphate in tetanus. He suggests the use of the intramuscular injection of permanganate of potassium in human tetanus. LEONARD J. KIDD.

SODIUM PERSULPHATE IN THE TREATMENT OF TETANUS.

(129) L. LEYVA, *Surg., Gynæcol., and Obstetrics*, 1917, XXV., Dec., p. 613.

A RECORD of three cases of tetanus treated by Lumière's intravenous injections of sodium persulphate. "When combined with anti-tetanic serum it relieves the pains and spasmodic attacks so much that the patient begs to be given the injections." The writer insists that the minimum dose must be 60 c.c. in one day: the solution must be freshly prepared, must be kept cold and in a shaded place. In the American Ambulance Hospital in Paris the injection was prepared in doubly distilled water, using the sodium persulphate in sealed bottles prepared by the firm Lumière of Paris. LEONARD J. KIDD.

"POISONOUS GASES."

INTOXICATION BY ASPHYXIATING GASES. SECONDARY
(130) **DIPHTHERIA OVERLOOKED. GENERALISED DIPHTHERITIC PARALYSIS WITH MENINGEAL REACTION. CURE BY INTENSIVE SEROTHERAPY. (Intoxication par les gaz asphyxiants. Diphtérie secondaire méconnue. Paralysie diphtérique généralisée avec réaction méningée. Guérison par la sérothérapie intensive.)** P. RAVAUT and RÉNIAC, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1917, 3 sér., xli., p. 1190.

A SOLDIER, aged 24, nine days after gas poisoning, developed a sore throat which was attributed to the effect of the gas. Three weeks later he developed typical generalised diphtheritic paralysis. A month after the onset of the paralysis he received, in the course of fourteen days, 380 c.c. of diphtheria antitoxin. During this period the disturbances of vision and deglutition disappeared, but there was no improvement in the lower limbs. A month later another series of injections was given, and progressive improvement took place until complete recovery occurred at the end of four months.

Three successive lumbar punctures made in the second, third, and fourth months respectively of the paralysis, showed an excess of cells and albumin in the cerebro-spinal fluid.

J. D. ROLLESTON.

ORGANIC HEMIPLEGIA FOLLOWING INHALATION OF
(131) **ASPHYXIATING GAS. (Emiplegia organica in seguito ad inalazione di gas asfissianti.)** V. RIGHI, *Giorn. di med. milit.*, 1917, lxv., p. 617.

A SOLDIER, aged 28, developed right hemiplegia and aphasia directly after being poisoned by asphyxiating gas (chlorine). When seen three months after the inhalation typical organic hemiplegia was present, with contractures, clonus, and wasting of the muscles of the affected limb.

As regards the mechanism of the hemiplegia, Righi supposes that the caustic action of the chlorine gas gave rise to severe pulmonary ulceration from which, as in pulmonary gangrene, an abscess or embolus was detached, causing occlusion of the left Sylvian artery (*cf. Review*, 1917, xv., p. 238). J. D. ROLLESTON.

POLYNEURITIS DUE TO INTOXICATION BY ARSENIATED
(132) **HYDROGEN ON BOARD A SUBMARINE. (Polynévrite toxique consécutive a une intoxication par l'hydrogène arsénié a bord d'un sous-marin.)** LAURENT MOREAU, *Compt. Rend. Soc. de Biol.*, 1918, lxxxi., 12 Janvier, p. 4.

ARSENIATED hydrogen, a very poisonous gas, can under certain circumstances be set free from accumulators into the confined air of submarines. It commonly produces severe gastro-intestinal symptoms, and sometimes polyneuritis, which may lead to complete degeneration of a neuro-muscular area. The patient was a man, aged 41, of good antecedents. During a submarine voyage he had sudden headache and nausea, and next day violent colic without diarrhœa: twenty other members of the crew also had symptoms. Three days after the onset he had sharp pains in the limbs and a sensation of weight in shoulders and arms. The sensory and motor paralysis affected the two lower limbs and the right shoulder and arm: the lower limbs quickly recovered, but the weakness of the right upper limb lasted a little longer. The right deltoid and spinatic showed a complete flaccid palsy and became atrophied, with a complete reaction of degeneration; this persisted for many months. Thus the generalised neuritis at the onset was reduced later to a neuritis of the circumflex and the supra-scapular nerve. LEONARD J. KIDD.

PSYCHIATRY.

PENSION IN NERVOUS AND MENTAL DISORDERS. (Les maladies
(133) **mentales et nerveuses et la pratiques des réformes, No. 1.)** R. BENON, *Rev. Neurol.*, 1917, xxiv., p. 306.

A GENERAL description of the methods in use in estimating whether a patient should or should not be pensioned.

D. K. HENDERSON.

REPORT OF THE EXAMINATION OF THE —— REGIMENT, U.S. ARMY, FOR NERVOUS AND MENTAL DISEASES.
(134) K. M. Bowman, *Amer. Journ. Insan.*, 1918, April, p. 555.

A series of 1,189 recruits were examined for nervous and mental diseases. The details of the methods of examination are fully given. Of these 1,189 cases, 542, or 45·6, showed positive findings; 117 cases gave positive family histories of nervous and mental disorder, but in 40 of these cases all other findings were negative; 57 cases gave positive personal histories of nervous and mental disorder, and in none of these cases were all other findings negative. Out of 144 cases more specially examined 27 were recommended for discharge from the army owing to mental defects, dementia præcox, hyperthyroidism, &c. D. K. Henderson.

THE BROADER PSYCHIATRY AND THE WAR. H. M. Adler,
(135) *Mental Hygiene*, 1917, i., July, p. 364.

A plea for the early care and treatment of mental cases, of the feeble-minded, and of the social misfits. It is necessary to establish psychopathic hospitals easily accessible to the general public, where patients could be received for a short period of observation, examination, and treatment. In this way many of the milder cases may be returned to the community either as recovered cases or under supervision. In order to make this work effective, it will be necessary for the psychopathic hospitals to maintain an out-patient service, to which anyone may come without fear of being incarcerated. D. K. Henderson.

THE STATE HOSPITAL AND THE WAR. W. A. White, *Mental*
(136) *Hygiene*, 1917, i., July, p. 377.

The question forming the basis of this paper is: "How can the patients in the State hospitals for the insane help in the prosecution of the war?" The author asserts that each hospital should become self-supporting in the way of farm products. Every available piece of ground should be put under cultivation, and thus benefit will accrue to patient, hospital, and country. Where several hospitals are under a central authority such hospitals might specialise along certain lines. One hospital might, for example, put in the necessary machinery and make shoes not only for its own consumption, but for all the hospitals; another hospital might make brooms and brushes; another furniture, &c. In this way industries could be developed, and the needs of the civil population and the army could in part be met.

D. K. Henderson.

THE USE OF INSTITUTIONS FOR THE INSANE AS MILITARY HOSPITALS. (137) T. W. SALMON, *Mental Hygiene*, 1917, i., July, p. 354.

THIS is a record of the conversion of asylums into war hospitals in England. Fifteen thousand insane patients have had to be transferred, and this enormously difficult task has been accomplished in a wonderfully efficient way. The arrangements necessary are reported in detail. It is, however, regretted that it should have been necessary for the helpless insane to be turned out of their hospitals, as no doubt their chances of recovery have been impaired.

D. K. HENDERSON.

THE CARE OF RETURNED INVALIDED SOLDIERS. (138) PEARCE BAILEY, *Mental Hygiene*, 1917, i., July, p. 345.

A REVIEW is given of the methods in use in Canada. It is estimated that 1,200 American invalids will be returned weekly. All invalids would pass directly to a reception hospital on Ellis Island, where they would remain for from three to six days, so that a thorough physical and mental examination could be made. It would be necessary to determine whether the disability had been acquired in the line of duty or had preceded enlistment; the exact nature of the disability would be determined; the examining board would fix as a matter of record the exact condition of the individual at a stated time. The insane should be carefully segregated from those whose mental disturbances are susceptible of more prompt recovery; the hysterics should be kept by themselves; and special education centres will be found for the care of the disorders of speech and hearing so frequently met with in this war. Federal and state boards of re-employment should be created so as to facilitate the patient's becoming self-supporting and independent.

D. K. HENDERSON.

MENTAL DISEASE: SUICIDES AND HOMICIDES IN THE UNITED STATES ARMY AND NAVY, 1897-1915. (139) EDITH M. FURBUSH, *Mental Hygiene*, 1917, i., July, p. 406.

A PURELY statistical study showing that in 1915 in the army, out of a mean enlisted strength of 94,729, there were 50 suicides and 21 homicides. In 1915 in the navy, out of a mean enlisted strength of 68,075, there were 21 suicides and 1 homicide.

D. K. HENDERSON.

THE PROBLEM OF MENTAL DISEASE IN THE CANADIAN ARMY. (140) C. B. FARRAR, *Mental Hygiene*, 1917, i., July, p. 389.

OF the total number of soldiers invalided to Canada, the proportion of nervous and mental cases has been fairly constant at 10 per cent., classified as follows:—

1. Neurotic reactions - - -	58 per cent.
2. Mental diseases and defects - -	16 „
3. Head injuries - - - -	14 „
4. Epilepsy and epileptoid - -	8 „
5. Organic diseases of the central nervous system - - - -	4 „

D. K. HENDERSON.

SOME EXPERIENCES IN THE GERMAN RED CROSS. C. A. (141) NEYMANN, *Mental Hygiene*, 1917, i., July, p. 392.

THE author had just graduated in Heidelberg at the outbreak of war, and for nine months served with the Red Cross. At the beginning of the war there were insufficient facilities for returning the men from the front, most of the wounded arriving at the base hospitals in cattle cars on straw bedding with wounds exposed and fractures often without splints. Germany was sure of a victory within three months, and as a consequence no provision had been made for specialised treatment of any kind. "Up to the time of the battle of the Marne we did not see a single mental case in our hospital, a base hospital of 280 beds with a very active service." By November 1914 many mental cases began to appear. One type of psychoneurosis stood out before all others called Granatfieber, grenade fever. These were individuals of poor physique who complained of indigestion, backache, &c., and when grenades were mentioned grew pale, trembled, and often fell down.

D. K. HENDERSON.

THE NEURO-PSYCHIATRY OF WAR IN RELATION TO DISCHARGE. (De quelques problèmes posés par la neuro-psychatrie de guerre au point de vue des réformes.) (142) A. MAIRET and H. PIÉRON, *Rev. Neurol.*, 1917, xxiv., Feb.-Mar., p. 89.

THE authors have analysed a series of cases of general paralysis, epilepsy, somnambulism, and disorders following anti-typhoid vaccination. They have examined twenty-one cases of general paralysis which have developed during the war. They are inclined to minimise the rôle played by syphilis in the development of these cases, but emphasise the part played by alcohol and hereditary factors. In seven cases they hold that the disease was simply produced by the stress of life at the front. Discharge No. 1 (a pension) should be given to those general paralytics whose disease is clearly due to the stress of campaign. Even those general paralytics who have certainly or probably had syphilis, but who, nevertheless, have been exposed to active service, should receive the benefit of a pension.

A pension should be accorded to epileptics whose attacks have developed as a result of concussion, traumatism, or from the fatigue of active service; it should be given to those epileptics in whom the attacks have been aggravated by the stress of service.

A pension, or at least a temporary discharge (Category 2), should be given to somnambulists whose condition has developed following concussion, traumatism, &c. The same plan should be adopted for those who have developed nervous or mental manifestation following anti-typhoid vaccination.

D. K. HENDERSON.

GENERAL.

HERPES OF THE CORNEA FOLLOWING ANTITYPHOID INOCU-
(143) **LATION. (Herpès de la cornée consécutif à la vaccination antityphoidique.)** GLOAGUEN, *Arch. de méd. et pharm. nav.*, 1917, ciii., p. 364.

OCULAR complications following antityphoid vaccination are extremely rare. Gloaguen records the only two cases seen among many thousands vaccinated at Cherbourg.

In the first case the first two injections were well borne, but the third was followed by fever and backache, for which lumbar puncture was performed. The spinal fluid was normal, but under hypertension. The following day intense labio-nasal herpes developed, especially on the right side. Three days later typical herpes of the cornea appeared.

In the second case the fever, headache, and backache appeared after the fourth injection, and herpes of the left cornea developed the following day.

In each case a slight corneal opacity resulted.

J. D. ROLLESTON.

BRADYCARDIA AND THE OCULO-CARDIAC REFLEX IN
(144) **AMŒBIC DYSENTERY. (Bradicardia e riflesso oculo-cardiaco nella dissenteria amebica.)** E. SIGNORELLI and V. M. BUSCAINO, *Riv. di Patol. nerv. e ment.*, 1917, xxii., p. 487.

BRADYCARDIA is a constant symptom at the end of a dysenteric attack, the pulse falling to 38 in the minute, and may persist well into convalescence. The pulse is more or less strong and regular, with slight oscillations from morning till evening. Systematic examination of the cardio-vascular system in all the patients and necropsies—six cases—allowed the writers to exclude an organic cardiac lesion as the cause of the bradycardia, which

they therefore concluded was functional. To confirm this view they investigated (1) the behaviour of the bradycardia under the influence of specific poisons of the nervous system (atropine, adrenalin); (2) the state of the oculo-cardiac reflex, with the following results:—

1. On subcutaneous injection of 1 mgm. of atropine in the period subsequent to a dysenteric attack, the pulse, after a transient slowing (of 3-13 radial pulsations), returned to the normal, or even exceeded it and became tachycardiac.

2. Subcutaneous injection of ¼ mgm. of adrenalin under similar conditions caused disappearance of the bradycardia, the radial pulse returning to normal, and even exceeding it. These experiments show (1) that the cause of the bradycardia in amœbic dysentery is functional, (2) that it depends on a vagotonia, and not on a paralysis of the sympathetic. As the result of 150 measurements the writers found the oculo-cardiac reflex normal in only 17 per cent., while in 81 per cent. it was weak, abolished, or inverted. To determine whether the abolition of the reflex was due to the interruption of the trigemino-vagal reflex arc, the writers examined the variations of the reflex under the influence of atropine in the initial stage, when it exercises a vagotonic influence.

The result of the examination was that the reflex, instead of being inverted, weak, or lost, became modified and even normal, which implies that the conductivity of the trigemino-vagal reflex arc was preserved.

Bradycardia begins at the period of decline of the dysenteric attack and of the fever, when the submucous abscesses formed as the result of the penetration of the amœba into Lieberkühn's glands have been emptied, causing ulceration of the mucosa, and the process of regeneration is beginning. The unusual stimulation of Meissner's plexus caused by the dysenteric process is partly reflected to the muscles of the colon, giving rise to contractions which can definitely be felt on palpation, and which, in the majority of cases, begin simultaneously with the bradycardia, and are partly reflected to the upper centres, causing a slow pulse.

The importance of the symptom is still greater when one considers that it may be the expression of an anatomical lesion of the intestine. J. D. ROLLESTON.

(145) **THE SYMPTOMATOLOGY AND MECHANISM OF TRUE AND FALSE CLONUS. (Étude sur la symptomatologie et sur le mécanisme du vrai clonus et du clonus artificiel.)** NOICA, *Rev. Neurol.*, 1917, xxiv., p. 55.

TRUE clonus occurs in lesions of the pyramidal tract, but it may also be seen in chloroform anæsthesia, and in traumatic osteo-

articular lesions of the foot. In eleven cases of amputation of one of the lower limbs, some above and some below the knee, false clonus was elicited eight times. In these eight cases the plantar response was always flexion. One doubtful case should be eliminated from the group, and the remaining two cases were in a very weak, emaciated state. In connection with this last finding it is pointed out that a false clonus is easily produced in those a little weakened, but not in the very cachectic.

In other two cases with foot wounds without amputation a true clonus was found on the injured side, and a false clonus on the healthy side. From these results it is believed that true and false clonus depend largely on exaggerated tendon reflexes without involvement of the pyramidal tract; or among certain normal individuals with lively reflexes which may be exaggerated by asking the patient to make a special effort. The mechanism is an involuntary and repeated contraction of the posterior muscles of the leg. D. K. HENDERSON.

THE NERVOUS MANIFESTATIONS OF SYPHILIS AMONG THE ARABS IN THE ARMY. (La syphilis et en particulier des manifestations nerveuses chez les Arabes aux armées.) LÉVY-BING and GERBAY, *Ann. des mal. vénér.*, 1917, xii., p. 449.

(146)

THE writers allude to Broc's paper on the principal characters of syphilis among the Arabs (*v. Review*, 1910, viii., p. 777), and record their observations on 123 Arab or Berber soldiers with active syphilitic manifestations. In spite of statements made by previous writers, they found that syphilis may injure the nervous system, and give rise to grave manifestations among Arabs, just as it does among Europeans. The variety of nerve symptoms is due to the Arabs' manner of life.

Brief histories are recorded of twenty-four cases in various stages of syphilis, with or without nervous symptoms, in which lumbar puncture was performed, and an excess of albumin or lymphocytosis was found. J. D. ROLLESTON.

SYPHILIS AMONG THE MOROCCANS. (Quelques considérations sur l'évolution de la syphilis chez les Marocains.) CARLE and BOURCART, *Ann. des mal. vénér.*, 1917, xii., p. 193.

(147)

THE paper is based on three years' observations of native troops who had been drawn from all the regions of Morocco. Three hundred and ten cases of syphilis in all were examined. Not a single case of tabes, general paralysis, or cerebro-spinal manifestation was seen. This may possibly have been due to the fact that in most of the patients alcoholism was unknown.

J. D. ROLLESTON.

THE MEDICAL ASPECT OF AEROPLANE ACCIDENTS. H. (148) GRAEME ANDERSON, *Brit. Med. Journ.*, 1918, i., Jan. 19, p. 73.

AFTER twenty-one months' experience at two aeroplane schools the author states that the causes of aeroplane accidents are:—

1. *Error of Judgment.*—This was the most prolific cause. It is difficult to account for, and occurs usually on landing, owing to the pupil misjudging distances. He may do this on account of under-instruction; or his vision being below normal; or owing to delayed visual reaction time (normally $\frac{19}{100}$ or $\frac{20}{100}$ of a second), which may be delayed by fatigue, drugs, or excesses; on the other hand, it may be delayed in those who are otherwise physically fit.

2. *Loss of Head.*—The pupil's power to "reason and act synchronically" may, under the sudden strain of an emergency, momentarily lapse. With loss of head the mental balance becomes upset; there is no mental inertia, but the wrong decision is taken and acted on, with seldom time to correct the error. It is very much allied to brain fatigue.

3. *Brain Fatigue.*—Here mental inertia (due to the repeated stimuli received by the brain in rapid succession during flight) supervenes, and the pupil reaches the stage in which he can neither reason, decide, nor act. A succession of errors occur in the air; he feels he cannot control the machine; fear does not seize him, but the enormity of the whole thing appals him; he feels helpless, and a state of brain fatigue occurs in which he, in a stupor, awaits events and takes little part in the aeroplane's control. This condition causes a fair proportion of accidents—usually from failure to flatten out on landing. There is little recollection of what happened—the memory being partially "stunned." It is difficult to diagnose the liability to brain fatigue, and when it occurs the man should give up flying. As a preventive, the initial solo flights should be of short duration.

4. *Fear.*—Whatever the sensations may be before going up or in the intervals, very few experience fear in the air in a sufficient degree to disturb flying. The attention is wholly occupied. Many confess to a sense of "danger lurking somewhere at the back of the head," but it rarely asserts itself.

5. *Physical Illness.*—Periodical inspection prevents this. An empty stomach may induce faintness or stupor in the air. Many instances of fainting occur in high altitudes. Two pupils had attacks of malaria when up. An epileptic fit, with an unknown previous history of epilepsy, occurred, causing a nose dive—the pupil escaped injury.

6 *Unavoidable Causes.*

7. *Defect in the Aeroplane.*

The author found that one pupil was injured in 560 flights.

H. DE M. ALEXANDER.

INJURIES TO THE EAR BY EXPLOSIONS. HOW CAN THEY
(149) **BE CURED? (Les mutilations de l'organe auditif par les detonations. Comment peut on les guerir?)** WICART, *Journ. de Med. de Paris*, 1917, Avril, p. 70.

THIS author takes a very hopeful view of "war deafness," stating that a cure may be obtained in 95 per cent. of the cases, and that only 1 to 2 per cent. need be discharged from the army.

Labyrinthine deafness is of functional origin in the majority of cases, and quickly improves under treatment by prolonged rest.

The otitis which is liable to follow traumatic rupture of the drum is, as a rule, readily amenable to ordinary conservative treatment, *i.e.*, the hydrogen peroxide bath followed by iodine-glycerine drops. Alcohol is not recommended, as it promotes cicatrisation, but increases the deafness. When the perforation has healed, it is important to ensure efficient ventilation of the middle ear by treatment of the Eustachian tube. Adenoids should also be removed, and other causes of nasal obstruction treated.

Lastly, Wicart emphasises the importance of the careful and thorough examination of all deaf soldiers by a staff of skilled otologists.

DOUGLAS GUTHRIE.

SLEEPING SICKNESS SIMULATING GENERAL PARALYSIS.
(150) **(Maladie du sommeil et paralysie générale.)** ANGLADE, *Soc. de Méd. e. d. Chirurg. de Bordeaux*, 1918, 1 Février *(Jour. de Méd. de Bordeaux*, 1918, lxxxix., Fevr., p. 50).

AN officer arrived in France from Central Africa in a lamentable state of physical and mental depression: on his voyage home he attempted suicide, and had to be closely watched. Examination showed tremor of facial muscles and tongue, with alterations of the pupillary reflexes and knee jerks, "and, in a word, all the signs of general paralysis." Lumbar puncture showed a massive albuminosis and confluent lymphocytosis of the cerebro-spinal fluid. The officer's papers showed that he was a case of sleeping sickness. Anglade remarks that if sleeping sickness can produce an ensemble of symptoms that can appear as general paralysis, the latter disease may be regarded not as a special disease but as a syndrome, which can be due to syphilis, or tuberculosis, or sleeping sickness, or other poisons.

LEONARD J. KIDD.

HYPERTHYROIDISM AFTER GUNSHOT WOUND OF THE
(151) **THYROID GLAND. (Hyperthyroidismus nach Schussverletzung der Schilddrüse.)** H. WERTHEIMER, *Wien. Med. Woch.*, 1917, lxxvii., pp. 733-735.

A SOLDIER, aged 18, developed all the symptoms of hyperthyroidism within three days of a gunshot wound of the thyroid gland. The

patient was of a lymphatic constitution, and recent investigations have shown that lymphatic individuals react especially violently to hyperthyroidism, probably on account of hyperplasia of the thymus, increased activity of one gland having an exciting influence upon the other. It should also be stated that he was in a state of violent excitement for a long time before he was hit, owing to the violent bombardment of the Russians.

This excitement must have had an intense effect upon the sympathetic system, and owing to the dependence of the thyroid secretion on the cervical sympathetic, it must be supposed that the epithelial cells of the thyroid were stimulated by the irritation of the cervical sympathetic to very active secretion.

J. D. ROLLESTON.

Reviews

LES BLESSURES DU CERVEAU. CHARLES CHATELIN. Second Edition. (152) Pp. 198. Collection Horizon. Masson & Cie, Paris. Pr. fr. 4.

THIS book embodies the experience of the neurologists of the famous Salpêtrière. Most of their clinical material consisted of cases which had been wounded at least several days before, and had already had surgical treatment. Many ideas regarding cerebral localisation which, before the war, were merely surmised, have now been definitely confirmed by the study of localised injuries to parts of the brain. A whole chapter is devoted to the subject of aphasia. The classical conception of aphasia with the speech centre placed in the third left frontal convolution was opposed in 1906 by Pierre Marie, who differentiated anarthria from aphasia. Anarthria is a state where the patient may understand more or less what is said to him, but has great difficulty in speaking. In a patient with anarthria the lesion is in the "lenticular zone," defined as the area containing the central grey nuclei, the internal and external capsules, the insula, the motor cortex, and some of the more important white bundles. The third frontal convolution is not included. Anarthria is not connected exclusively with the left hemisphere, but may be brought about by a lesion of either side. Aphasia is localised in the zone of Wernicke, *i.e.*, the gyrus

supramarginalis, gyrus angularis, the posterior end of the first two temporal convolutions, and the subjacent white matter as far as the descending horn of the lateral ventricle on the left side. The above area is the centre for language, and must not be considered as a sensory, but rather as an intellectual centre. This view of Pierre Marie has been confirmed by the study of wounds of the brain.

A large section of the book is devoted to the cerebellum, and is intensely interesting. The book requires to be read to be fully appreciated, as full justice cannot be done to it in a short review.

J. K. MILNE DICKIE.

OTITES ET SURDITÉS DE GUERRE. H. BOURGEOIS and M. SOURDILLE. Masson & Cie, Paris. Collection Horizon. Pr. 4 fr.

(153)

THIS book gives a very clearly written account of the methods employed in the French army of dealing with the problem of the deaf soldier. These cases are sent to special centres for investigation by experts. The most interesting parts of the book are those devoted to functional deafness and malingering. Of the methods used in the differentiation of functional and simulated deafness from true deafness, the cochlear reflexes have been found of the greatest value. Lombard's test, or the cochleo-phonatory reflex, depends on the fact that a normal person speaking in a loud noise unconsciously raises his voice. The test is carried out by means of an apparatus constructed on the principle of the telephone, which, on pressing a button, produces a loud noise, temporarily deafening both ears. The ear pieces of the apparatus are adjusted over the patient's ears, and he is engaged in talk or made to recite or count out loud. The noise is then suddenly started. If the patient is totally or very nearly totally deaf, there is no alteration in the voice, but if the deafness is functional or simulated, the patient raises his voice as soon as the noise begins, and drops it when the noise ceases.

The cochleo-palpebral reflex has also been found of great value. It depends on the fact that any sudden sound which takes the patient by surprise causes a slight movement of the orbicularis. The sound need not be loud, but must be unexpected. Needless to say, it must not be attempted repeatedly, as the element of surprise is very important. This reflex is explained by Molinié as an exaggeration of the normal reflex of auditory accommodation. The track of this reflex is through the acoustic nerve to the eighth nucleus, and from there to the seventh nucleus and along the facial nerve to the stapedius muscle. An extra strong stimulus spreads

from the fibres supplying the stapedius to those supplying the orbicularis.

The writers also lay a certain amount of stress on the galvanic test as supplied by Babinski. In this test no attention is paid to the nystagmus induced by the electric current. The important point is that in a normal person the head and trunk are inclined to the side of the positive pole, or if the current is strong enough he may even fall in that direction. In the case of a diseased labyrinth he may fall in a direction which has no relation to the direction of the current. In fact he falls in the direction towards which he already has a spontaneous tendency to fall.

The problems dealt with in this book are very similar to those encountered in civil practice, where questions of compensation arise following injuries to the ear, and for this reason a perusal of the book is well worth the while of anyone who sees many of these cases.

J. K. MILNE DICKIE.

TREATMENT OF JOINT AND MUSCLE INJURIES. W. ROWLEY (154) BRISTOW. Pp. xii+148, with 38 figs. Henry Frowde and Hodder & Stoughton, London. 1917. Pr. 6s. net.

THE main object of this book is to call attention to the method of treating sprains and simple injuries of joints with muscle wasting by the method of graduated contraction, and especially injuries of the knee-joint with quadriceps insufficiency.

As the result of joint injury or disease, the muscles which normally control the movements of that joint waste; this wasting is not simply from disuse, it is "active" and reflex, due to the fact that the joint and the muscles which normally control its movements are supplied by the same nerves. Long courses of massage will not build up the wasted muscle; what is required is muscular contraction, which restores the muscle tone and with it muscle function. Given an intact nerve-supply, contractions can be obtained in muscle, no matter how wasted. The method here described is to stimulate the muscle by an induced (faradic) current, the contractions being exactly graduated as regards degree and rhythm by the operator. The benefit is the result of the muscular contraction, not of the electricity *per se*. Repeated and haphazard stimulation will produce contraction of a muscle, but will not in practice produce restoration of muscle function.

The method is explained in detail, and chapters are devoted to acute sprains, chronic sprains, fractures and dislocations, after-treatment of peripheral nerve injuries, and treatment by massage exercises and heat. Cases are described, illustrated by skiagrams, and there is an index.

SHELL-SHOCK AND ITS LESSONS. G. Elliot Smith, M.D., F.R.C.P., F.R.S., and T. H. Pear, B.Sc. Second Edition. Pp. xv+135. Manchester, at the University Press; Longmans, Green & Co., London. 1917.
(155)

The first edition of this book has already been reviewed (*v. Review*, 1917, xv., p. 364). The second edition is reissued in the original form.

HYSTERICAL DISORDERS OF WARFARE. Lewis R. Yealland, M.D., with preface by E. Farquhar Buzzard, M.D., F.R.C.P. Pp. xii+252. Macmillan & Co. Ltd., London. 1918. Pr. 7s. 6d. net.
(156)

The essence of this book is that the hysterical disorders of warfare react better and quicker to an intensive method of treatment than to the more prolonged measures generally adopted. The principle is based on the belief that a disorder originating in suggestion should yield to counter-suggestion, and that the precise method of counter-suggestion is really immaterial provided it be strong enough. Needless to say, it has to be varied according to the mental attitude of the patient.

No attempt is made here at an elaborate psychoanalysis of the case. The author usually locked himself into a room with the patient, and by a mixture of persuasion and encouragement, combined with electricity, succeeded in obtaining the desired results, the patient having been informed that he would not be allowed to leave the room until cured. A large variety of cases are described at length, including mutism, deafness, blindness, monoplegia, paraplegia, hemiplegia, fits, disorders of gait, &c. The method is essentially crude, but, on the other hand, if it be judged by the results, can be remarkably successful. There seems to be little doubt also, that although many of the cases relapse, a large number of the recoveries were permanent. It is often not realised, however, that the fact that, while such treatment is successful in soldiers during a war, it does not necessarily follow that it will be equally successful in civilian cases in ordinary life, because the functional conditions treated so successfully in this book undoubtedly exist at a far more superficial level than the more deep-seated disturbances of everyday existence.

The overcoming of the resistance of many of the cases required often many hours' continuous effort, and the ingenuity of the various methods devised to effect this, as well as the different stages in obtaining the desired results, render the book most interesting and well worthy of careful perusal.

WAR NEUROSES. By JOHN T. MACCURDY, M.D., Psychiatric Institute, (157) Ward's Island, New York, with a preface by W. H. R. Rivers, M.D. Pp. iv+132. Cambridge, at the University Press. 1918. Pr. 7s. 6d. net.

THE account of the neuroses of war set forth in this book was written primarily for the instruction of the medical profession in America, and was originally recorded in the *Psychiatric Bulletin* in July 1917. Dr Rivers states that the book should prove also valuable to the intelligent layman.

The simplicity of the war neuroses compared with those of civil practice is due to the fact that the former depend essentially on the coming into play of the relatively simple instinct of self-preservation, while the latter hinge largely upon factors connected with the far more complicated set of instincts associated with sex. Sexual factors play a comparatively small place in war neuroses, although individuals who have shown a lack of adaptability to the stresses of sex are also liable to fail in their adaptability to the stresses of warfare.

War neuroses are classified here into two main varieties. In one the various mental factors tending towards neurosis produce states of anxiety with symptoms similar to those which accompany anxiety in its milder and non-pathological forms. Dr MacCurdy speaks of this group in general as "anxiety states," and does not use the "anxiety neuroses" and "anxiety hysteria" of other writers. The second group is formed by those cases in which the mental factors find expression in manifestations resembling in some measure those produced by a wound or other physical disability. This group is entitled "Conversion Hysterias" on the ground that the morbid psychical energy to which the neuroses is primarily due has been converted into the physical symptom or symptoms. The direction taken by the morbid psychical energy underlying the neuroses depends largely upon the nature of the desires entertained by the soldier before his breakdown, the view being here put forward that those who suffer from anxiety states have wished for death during the period of strain and fatigue preceding the final collapse, while sufferers from conversion hysteria have entertained the desire for disablement, for a "Blighty" wound, or for some disabling illness.

AN EPITOME OF MENTAL DISORDERS. A practical guide to (158) **ætiology, diagnosis, and treatment, for practitioners, asylum and R.A.M.C. medical officers.** E. FRYER BALLARD, M.B., B.S. Pp. xv+211. J. & A. Churchill, London. 1917. Pr. 6s. net.

THIS book is intended to give a concise practical aid to the diagnosis and treatment of the more common varieties of mental

disorder met with in general practice and asylums. It is pointed out that while many alienists deny the existence as clinical entities of nearly all forms of insanity, the mere use of the term syndrome as applied to mental disorders, represents an attitude which the writer thinks is the negation of all clinical progress, and tends directly to discourage the study of insanity by practitioners who have only facilities for clinical investigation. As it is easy to understand the main clinical features of a case, the chapters here have been so adapted, and deal in turn with states of excitement, depression, stupor, mental enfeeblement, &c. A short chapter is devoted to "shell shock, including battle strain," &c.

The different chapters are clearly and concisely written, and should prove of considerable assistance to those desiring not too elaborate an introduction to the understanding and treatment of the commoner forms of mental disorders.

(159) **THE ORIGIN, SYMPTOMS, PATHOLOGY, TREATMENT, AND PROPHYLAXIS OF TOXIC JAUNDICE OBSERVED IN MUNITION WORKERS. Being a discussion by the sections of medicine, pathology, and epidemiology of the Royal Society of Medicine** (January 1917). Pp. 106, with 5 figs. and 3 coloured plates. Longmans, Green & Co., London. 1917. Pr. 7s. 6d. net.

THIS discussion, professedly confined to the toxic jaundice of munition workers and troops, resulted in a symposium on the toxic effects of tri-nitro-toluene.

Tri-nitro-toluene liberates fumes as low as 32° C. (90° F.). The poison may enter the body by inhalation or by absorption through the skin. The greatest incidence occurs in the third month of employment. The symptoms are (1) *dermatitis* from local action of the explosive; (2) *gastritis*, irritative, ascribed to swallowing tri-nitro-toluene, and toxic from absorption through the skin; (3) *toxic jaundice*, often sudden in onset; and (4) anæmia. The morbid appearances seen in twenty-two carefully examined cases with toxic jaundice showed great reduction in the size and weight (17 to 66 oz.) of the liver, which was in a condition of yellow and red atrophy. The lesion is the same as that familiar as acute yellow atrophy.

Thorough prophylaxis appears to be able to render the workers more or less immune.

Review

of

Neurology and Psychiatry

Original Articles

WAR PSYCHOSES—A REPORT OF SIX UNUSUAL CASES SHOWING MEMORY DISORDER.

By Temp. Captain D. K. HENDERSON, M.D., R.A.M.C.,
Royal Victoria Hospital, Netley.

In 1887 Korsakow described under the term "Toxæmic Cerebropathy" a series of cases characterised by a memory defect for recent events and confabulation associated with a peripheral neuritis. Such a combination of symptoms was most frequently seen in cases where alcohol had been the etiological factor, but in 1889 Korsakow described a series of fourteen analogous cases non-alcoholic in origin. Since that time cases have been put on record as occurring after practically any toxic-exhaustive factor, *e.g.*, influenza, typhus fever, typhoid fever, syphilis, tuberculosis, pernicious vomiting in pregnancy, &c.

In this communication I wish to put on record three cases of extraordinary memory defect, and confabulation following burial, and three other cases with a somewhat analogous picture, one of which followed dysentery, one enteritis, and one dysentery plus malaria.

1. No. 1460, a private, 19 years old, had been in the army for two years and one month. On 24th September 1916 he was admitted to Netley, from Rouen, labelled as a case of "Cerebral Injury" (buried). No other notes accompanied

him. On admission to Netley the patient described himself as perfectly well in every way. He was examined by Lieut. (now Major) Read, who reported as follows: "He lay in bed with a vacuous expression, and was completely disoriented for time and place. His memory was highly confused as to recent events; he states that he came yesterday (to-day), then that he had been here a month, and had come in with adenoids. He said that he was at West Ham (where he had previously lived), had gone to Netley to-day on private business, and had come back again. No rational conversation was possible, and no reliable account of his doings could be elicited. He stated that he had joined up in September 1915 (August 1914), and had gone to France before Christmas 1915. He had gone into the trenches for general purposes. He did not know of any shell-concussion knocking him over and burying him. On further questioning he contradicted himself, and much could be suggested to him, *e.g.*, he said that last night he had been home, and had not been in France for six months. No special delusions or hallucinations could be found. Affect quite happy."

Physical Examination.—"He is too confused and stupid to examine thoroughly, but little abnormal was found. The left pupil was slightly larger than the right, but the pupils reacted normally. The cranial nerves were normal, with the exception of a doubtful paralysis of the right side of the face. Knee jerks were marked, but equal on the two sides: no clonus; plantar response was marked by a voluntary movement; abdominal reflexes normal. No sensory defect. Motor power was poor, due probably to length of time on his back, and partly to his confused state. He could not stand or walk even with support, but no special defect was noticed except weakness. No tremors. He wet his bed once or twice. He had black marks on his right hand as if from burial."

On 27th September 1916 he was transferred to the Lord Derby War Hospital on a stretcher. On admission he had a dull, heavy, dreamy expression, his features seemed smoothed out, his left pupil was more dilated than his right, but both pupils responded promptly to light and on accommodation. There was no paralysis of any of the external eye muscles. The left side of his face was more flattened than the right, and his tongue was protruded slightly towards the left. His speech was hesitating

and slurred. There was no absolute loss of muscular power, his hand grips were good, and he could stand on a broad base without support, but he was unsteady, and could not walk without assistance. There was no ataxia, but the whole condition struck one as an inert, listless state which seemed to be due to general exhaustion more than to anything else. His tendon-reflexes were hyper-active, but the left knee and left Achilles jerk were more exaggerated than those on the right side; there was a slight ankle-clonus on the left side (four or five jerks), and a Babinski response was elicited on both sides. His abdominal, epigastric, and cremasteric reflexes were equally present on the two sides. He had incontinence of urine, and his bowels were constipated. On questioning him he answered promptly and relevantly, he apparently had had a good education, but the striking symptom which was present was his tendency to confabulate, and his easy suggestibility.

Your name? "Charles C."—How old? "Nineteen."—Your address? "226 Victoria Dock Road, West Ham, London" (*c*).—Occupation? "A clerk" (*c*).—What is your trouble? "Bad water." (Probably referring to his incontinence.)—What do you mean? "I don't understand it myself."

He stated that he felt perfectly happy and satisfied; he had no appreciation of his difficulties and defects. His head, he said, felt perfectly clear, and he considered himself just as fit to carry on with his work as he had ever been. He was entirely disoriented for time and place, thought that he was at West Ham, and that, in the morning, he had been, as formerly, at his place of business. He could not tell when he had gone to France, but stated that it was nearly twelve months since he had been in the firing line. Despite all his tendency to confabulate, he recognised the medical officer as such, the place as a hospital, and the sergeant as a hospital orderly.

The following letter from one of his comrades to his sister fully explains the origin of his condition:—

"I regret to inform you that C. has been wounded. He was in a trench with me when he got buried, and was taken to hospital unconscious. I have made inquiries, but so far have not been able to ascertain any further information. I helped to carry him to the dressing station, and when I left he was breathing quite freely, &c."

On 2nd October 1916 he was still exceedingly listless, and

oblivious in regard to time, place, and his own condition. He confabulated tremendously, said that he had arrived to-day (really five days ago) from Ilford, and that the last time he had been here was last Sunday week. In between that time and to-day he had been at work in his office with Messrs R. & P. Yesterday he had been home at West Ham, had spent the day with a chum whose name he had forgotten. A few minutes later he said that he had just come back from France last week, that he had enlisted in September 1915 (August 1914), had gone to France in June 1915, but that he had not been in action, and had not been injured in any way. He mis-identified the medical officer, said that he had known him ever since he (the patient) had been a little boy, and that the medical officer had on several occasions attended his father (which was false). His power of retention was exceedingly poor, and after a period of two minutes he was quite unable to recall a name, number, and colour which he had been asked to repeat and to remember. His memory for remote events was, however, quite good, he had retained a good grasp on his school knowledge, and calculated correctly.

An ophthalmoscopic examination by Captain Richards showed normal fundi, and a visual acuity of 6/6 in each eye.

During his hospital residence a gradual improvement started to take place in his condition, and on 18th December 1916 he is noted as having practically returned to his normal condition. He now takes an interest in everything, is cheerful and helpful, and has a good memory both for remote and recent events. The last thing he remembers in France is being in the trenches, and when he came to himself he found that he was in this hospital. He has no remembrance of being buried, of being in hospital in France, of his journey to England, &c. Physically, he has now no evidence of any disease, and there are no neurological signs.

His father had been in an asylum for a number of years. He had three brothers and two sisters, all strong and well. The patient himself had done excellently both at school and also later in business.

This case, showing such an extraordinary condition of confabulation as described above, following burial, is, so far as the writer knows, unique. The neurological symptoms which he showed on admission, and for some time following admission, could no doubt be adequately explained on the basis of concussion.

2. An able-bodied seaman, 40 years old, was admitted on the 27th of January 1918 to D. Block, Netley, from France, labelled "mental stupor." His history was as follows:—On the 30th of Deecember 1917 he was admitted to a Field Ambulance suffering from contusion of the head (buried by a shell). On the same date he was transferred to a C.C.S., and was described as follows: "On admission the patient was unconscious, and had some abrasions on the right side of his forehead. He has improved, but has passed through the typical phases of severe head concussion. Even now he is far from responsible for his actions, and is irrational in many ways. There never has been any symptom or sign to suggest gross intracranial lesion." On the 18th of January 1918 he was admitted to General Hospital: "He was irresponsible, had no remembrance of his accident, and was very forgetful, *e.g.*, forgets that he has had his meals. He had incontinence of urine and fæces; double plantar extensor response, double ankle-clonus, double patellar clonus, exaggerated tendon reflexes. His pupils reacted. His cerebro-spinal fluid showed a few polymorphs due to the presence of blood, but there was no increase of lymphocites and no excess of globulin."

On Admission to Netley (27th January 1918): He did not believe that he had come from France, and seemed very mixed.

On Examination: He answered questions promptly, was natural in his manner, and co-operated to the best of his ability in an examination. He gave his name and home address correctly, but he was unable to give his regimental number, and stated that he had enlisted in the Volunteers only a fortnight ago (he had really been in the Hood Battalion, 63rd Royal Naval Division, and had been in the army for two years). He stated that he had never enlisted in the army, that he had never been to France, but that he had been employed as a pianoforte finisher and regulator (his civil occupation), by Kemble & Co., in Stoke Newington. He went on to say that after joining the Volunteers he came here two days ago (really one), and that Kemble & Co. would give all information about him. A few minutes later he stated that he did not come here until this morning, that he had been here a week ago, and that yesterday he had been at the place where he had just come from, but he was unable to give its name.

When did you join the army? "About three weeks ago—a good three weeks—more than that I have no idea, to be exact."—Where

were you before that? "I was carrying on business."—Where? "For Kemble & Co."—How long were you with them? "For four or five years."—What is your complaint? "Piles."—Anything else? "I have a pain in my side."—How is your head? "It is just the same—I do not complain about it—it affects me all over, and goes off—but it is the piles that are the principal thing—simply shocking they are. I was under a doctor in Camden Town for piles."

In answer to direct questions he complained of occasional headache and dizziness, but he maintained that his head felt quite clear, and his memory was good. He was completely disoriented for time and place, but he realised that he was in a hospital, and that the examiner was a doctor.

In contrast to his striking amnesia and confabulation, his memory for remote events was good, and he was able to give a fair account of his life. He had been born in London in 1878 or 1879, and would be forty years old this year. He had come from a healthy stock, had been a strong and healthy boy, and at school was in Standard VI. at the age of fourteen years. After leaving school he started to learn his trade as a pianoforte finisher and regulator. He gave an account of whom he had been employed by, and on an average had earned £5 per week. He had been married for eight years, and had two healthy living children. His memory for recent events, as shown by the examination, was quite adrift. When told that he had been in France with the Hood Battalion, and that he had been buried by a shell explosion, he remarked that it was all news to him. When given a name, a number, and a colour to remember, after a period of five minutes he had forgotten two out of the three tests. He was able to do simple calculations correctly, and was a man of considerable general intelligence. He did not have the slightest insight into the serious nature of his mental disorder.

Physically, he walked in a slow unsteady way, and had exaggerated tendon reflexes, equal on the two sides; he now had control over his bladder and bowels; his plantar response was flexion on both sides, and no clonus could be elicited.

On 30th January 1918 another examination was made, which served to confirm the previous findings. He said that he felt quite cheery, and that he had nothing whatsoever to complain of.

When did you come here? "Yesterday (really three days

ago), I believe, sir."—Where from? "They tell me from Southampton."—How long in Southampton" "About a week, or four or five days—I suppose the Volunteers did it."

He still had no memory of ever having been in France, or of having been buried. His power of retention was exceedingly poor, and when tested by short stories he was unable to give the gist of the story even after three readings. With word-pairs he also showed very grave defects.

A letter received from the firm who had employed him in civil life in part stated that he had been a very competent and reliable workman, and that at any time they would be glad to re-employ him.

Such a case, then, is in very close accord with the case reported above.

Another case not quite so clean cut as the two reported above, but in the main showing the same symptoms, and followed by an amnesia, is as follows:—

3. No. 7445, private N. F., 18 years, on 4th October 1916, was admitted to the Lord Derby War Hospital with a diagnosis of "shell shock and old bullet wound of elbow." His history was to the effect that about the middle of August 1916 his dug-out had been blown in, and along with two others he was buried for a period of nine days. On 8th September 1916 he had been admitted to the East Leeds War Hospital, where he is described as having a synovitis of his right knee, left hand swollen, ankle deeply ecchymosed, left shin bruised, hips bruised, bruises all over his body, On 14th September he was restless, had delusions, and was stated to be either mentally deficient, or else was wilfully making himself a nuisance. He slept all day, shouted all night, laughed and talked in an irresponsible way, and seemed to have no idea of time. He had outbursts of swearing and foul language, and would throw off his bed-clothes in the presence of nurses and visitors.

On admission to this hospital (4th October 1916) he was restless, noisy, and flippant. He asked the same question over and over again, tended to confabulate, and was dirty in his habits. He had considerable swelling of his left wrist, and complained of pain on movement of the small and ring fingers of his left hand. He had a marked synovitis of the left knee, and was unable to stand or walk. There was, however, no disease of his organs,

and no neurological symptoms. Owing to a rush of work this patient was not again examined until 16th October, but he was noted as continually asking the same question over and over again, and after his brother had visited him his brother informed me that he really could not carry on a satisfactory conversation with the patient as the patient was so forgetful. On the above date the patient stated that he was feeling very much better, but he still complained of headache, giddiness, and of his eyes becoming blurred. He was nervous and somewhat downhearted. He could not give the date of his enlistment, nor when he had gone to France, but he thought he had been there for four or five months. He remembered being in the fighting near Delville Wood, but he could not give any details in regard to his being buried, or about his being brought to England. He had no recollection of being in the hospital in Leeds, and he had no recollection while there of being visited by his parents and brother.

What day is it? He could not say whether it was Saturday or Sunday.—Month? "I couldn't say."—Year? "I don't known whether 1915 or 1916."—Place? "Birmingham—I think" (Warrington).

His memory for remote events was quite good, but recent events he tended to forget from day to day, and his power of retention was considerably impaired. He had good insight into the nature and extent of his defects.

By March 1917 he had grown much stronger, his head felt clear, but he realised that his memory was so bad that he had to write everything down or else he would forget it; he found it especially hard to remember addresses and names. The last thing he remembered in France was being one of a fatigue party helping to carry ammunition up to Delville Wood.

His father had been a heavy drinker, and the patient himself is described as having been high strung, but he had been efficient at school, and later as a salesman.

In none of the above three cases was there any history, or any suspicion of alcoholic indulgence.

The next case is one in which dysentery was the etiological factor.

4. No. 1721, Private W. W., 32 years, has been in the army for two years.

On 13th August 1916 he was admitted to Netley from Salonica.

On 4th July 1916 he had been admitted to hospital in Malta, where he was described as follows:—"A very severe case of dysentery, bacillary, frequent stools, some involuntary, and great emaciation. About ten days ago he was noticed to be strange in manner, and spoke insanely. Is quite harmless and clean, only very talkative, and requires to be fed. Has benefited from chloral and bromide, gr. xv., at night." At Netley the following note was made: "Patient's memory is quite adrift. He stated that he enlisted in 1913, and went straight to the war, which began the year before. Says this is 1912 (1916). Gives an uncertain history of having been discharged from the A.S.C. after three weeks about twelve years ago, of having been in the volunteers for eighteen months, of going to Australia in 1897, and to Canada three years ago. He stated that he had enlisted in the A.S.C. at Calgary as a lieutenant, and had just been transferred to the Alberta Rangers. He is so confused and mixed up that his statements are quite unreliable. He does not know where he is, or the day, date, or year, where he came from, or how he got here."

On admission (25th August 1916) to this hospital he lay quietly in bed, answered questions readily, but was exceedingly plausible, suggestible, and confabulatory, and his statements could not be relied on. He mis-identified the medical officer, said that he had known him for years (which was false), and that his name was Dr Beverley-Fenton. He complained of "stomach trouble and diarrhœa," but said that his head was quite clear, and that there was not the faintest thing the matter with it. He stated that he had come here last Monday (Saturday), that he had been here for five days (3), and that he had come from Kingston-on-Thames (Netley), and had been living there ever since 1897. A minute or two later he said that he had enlisted in the army in 1907, "just when the war started." He was totally disoriented for time, and gave the name of the place as Salonica. He really could not remember anything from minute to minute, but his memory for remote events was fairly good, and he came remarkably well up to the level of his surroundings. He had no insight into his condition.

Physically, he was exceedingly emaciated, and only weighed 5 st. 6 lbs.; his height was about 5 ft. 7 in. His muscular power was greatly diminished, but there was no definite wrist drop or foot drop; his hand grips were exceedingly weak, and he walked

only with the greatest difficulty and with support. His knee and Achilles jerks could not be elicited on either side, but his arm jerks were present, and if anything were slightly exaggerated. Tenderness was elicited on deep pressure of his muscles. His pupils responded promptly to light, and on accommodation; he had a slight lateral nystagmus.

During his hospital residence a very satisfactory improvement took place in his condition, and he increased over two stone in weight. His memory for recent events, however, still continued to be bad, he became readily confused in regard to dates, and special retention tests showed quite striking defects. He had no memory of having had dysentery, of being in Netley, of coming to this hospital, and so on. He denied ever having taken alcohol to excess, and this statement was confirmed by his wife.

His knee and Achilles jerks remained absent, and tremors of face, tongue, and hands, and his lateral nystagmus continued to persist. This case, then, is a good example of Korsakow's psychosis occurring as a result of dysentery.

The symptoms in the following case appeared after a severe attack of enteritis.

5. No. 15,678, Private G. W. T., 25 years old, had enlisted in the army in August 1914.

Previous to his joining the army he had been a strong, healthy man, and had been working as a dock labourer. He was the eldest of eight children, and in consequence he started to work when 12 years old, and had only had about 12 months' schooling. Apart from a certain intellectual deficiency he proved himself to be a steady, hard-working man, who was practically a teetotaler, and the chief support of his family.

Six or seven months after enlisting in the army he was sent to Egypt, and eventually to Mesopotamia, where, in April 1916, according to official reports, on the Tigris, he was wounded in the arm. He was sent to Basra, and in June 1916, while there, he developed "sickness." On 4th September 1916 he was admitted to the Victoria War Hospital at Bombay, where he was described as extremely emaciated, his tongue was red and covered with a white fur, and his stools were nearly all blood and mucus; there was no albumin in his urine. His mental condition was "peculiar," and at times he talked much. No amœbæ were found in his stools, and no malarial parasites were found in his blood. He had

a large sacral bedsore going down to the bone. On 19th December 1916, on the hospital ship, he had incontinence of urine and fæces. On 23rd December 1916 he was admitted to the 1st Western General Hospital, Liverpool, where he was stated to be suffering from enteritis, loss of memory, and was strange in his manner.

On 12th January 1917 he was transferred to this hospital; he was in a weak, emaciated condition, and weighed only 7 st. 9 lbs. His mother, who visited him two days after admission, stated that he was exceedingly forgetful; and during a conversation repeatedly asked her the same questions over and over again.

He answered questions promptly enough, said that he was feeling perfectly contented, and that his head was quite clear. He denied having had imaginations. He made no spontaneous remarks, did not confabulate, but frequently said "I don't know."

When did you come here? "I don't remember coming here."—Where did you come from? "I was attached to the A.S.C., 13th Division, from Egypt."—When was that? "I couldn't say, sir."—Month? "Is it January?" (*c*).—Year? "1917" (*c*).—Place? "I don't know."—What kind of place? "Hospital."—Where? "England."—Where? "Is it Liverpool?" (Warrington).—Where were you before you came here? "All I can remember is a card over me saying Victoria War Hospital" (Bombay).—Where was that? "I suppose it was abroad, but I cannot say where."

He remembered having enlisted in the army in August 1914, trained on Salisbury Plain, and after a period of about seven months went to Egypt. He had no remembrance of ever going to Mesopotamia, did not know that he had ever been wounded, and could not give any details of his journey from Basra to Bombay, or of his journey home to England.

In contrast to the above, his memory for remote events was practically intact, and he was able to give an excellent account of his early life, and the employments he had pursued in civil life.

His power of retention was also exceedingly poor, as when given a name, address, town, and plant to remember, he had forgotten two out of the four in a period of four minutes. As tested by numbers, he failed twice out of six numerals, and he was unable to repeat any tests containing seven numerals. His school knowledge was up to the level of his educational opportunities.

He himself had practically no realisation of the serious nature of his disorder.

Physically, he was in an exceedingly emaciated condition, could not stand nor walk, and showed especially a weakness of the extensor muscles of his feet. His hand-grips were good. His knee and Achilles jerks were absent on both sides, but his arm jerks were present and equal on the two sides. There was some tenderness on deep pressure over the nerve trunks, but it was not especially manifest. Otherwise there were no neurological symptoms, and no gross disease of his organs. His enteritis had been cured.

During his residence in hospital there has been a slow but steady improvement in his condition. He is now much keener and brighter, takes an interest in what goes on around him, and tries to help in any way possible. His memory for things which happen from day to day has steadily improved, but he still has a complete amnesia for the period of time he was in Mesopotamia, and for his journey home to this country. He still fails quite strikingly in retention tests.

His knee and Achilles jerks are still not able to be elicited on either side, but he is now, despite a marked weakness in the extensor muscles of the feet, able to take a fair amount of walking exercise. He has been treated with general measures and massage, and has gained 12 lbs. in weight.

Although in this case there was no tendency to confabulate, but rather simply a statement of "I don't know," still his memory defect for recent events, his retention defect, and his amnesia for his service in Mesopotamia, along with his absent tendon reflexes, was so striking, that his case comes more or less into line with those described.

The next case also showed cerebral symptoms following dysentery, but while in hospital malarial parasites were found in his blood.

6. No. 2075, Private G. G., 30 years old, had been in the army since December 1914, and was admitted to the Lord Derby War Hospital on 15th September 1916.

He had been invalided from Salonica with dysentery, and on 27th August 1916, on board the hospital ship, he was described as being in a weak, debilitated condition, and very anæmic. Heart sounds and pulse were feeble, but there was no valvular disease of the heart. His tongue was furred, breath foul, and there was great loss of muscular power. Mentally, he was very depressed,

"probably suicidal," and said that he was going to be drummed out of the army, and then shot. He suffered from auditory hallucinations, and said that people were calling him names such as coward, &c. On 4th September 1916 he was admitted to Netley, where he continued to be depressed, complained of auditory hallucinations of a depressive nature, did not know what country he was in, and could not give the day, date, or month. He was in a very emaciated condition, his tongue was tremulous, and his knee jerks were absent.

On admission to this hospital (15th September 1916), he stated that while at Salonica he had had a bad attack of dysentery, and had been "queer" in his head. He had been feeling quite well until that time, but after taking ill he became depressed and worried, felt "funny" in his head, and at nights he would hear strange voices, and there seemed to be things underneath his bed. He heard people say that they would drum him out of the army, and others threatened to shoot him. He seemed to see a young lady, whom he had been in love with, walk by his window, and to annoy him the other men would seem to drive her away. His aunt (with whom he had made his home) seemed to be on board the hospital ship, but they would not give him permission to see her. His memory for recent events was found to be exceedingly poor. He said that he had been here for one week (really two days), that he had come all the way from Netley in a motor ambulance, and that the journey had only taken about one hour. He misidentified the medical officer, and said that he had known him at Malta, but he was quite unable to recall his name.

What day is it now? "I don't know exactly—either Saturday or Sunday" (Sunday).—Month? "August or September" (September).—Year? "1916" (*c*).—Place? "I don't know exactly."

In contrast to the above he was able to give a good account of his early life, had been a strong, healthy boy, and in civil life had worked in Lipton's as a grocer's assistant. He had seen service in Belgium, Egypt, and Salonica.

Physically, he was in a weak, emaciated condition, could walk only with support, and was very listless and inert. There was no absolute loss of muscular strength, but his knee and Achilles jerks were greatly diminished, and there was tenderness on deep pressure over the nerve trunks.

A few weeks following admission he had an attack of ague, with chills and fever, and an examination of his blood showed the malarial parasite in great numbers and in all stages.

Very gradually a betterment has come about, and for the last six weeks he has had no fever. He is still (8th April 1917) very dull and listless, talks in a low voice, is depressed, and worried about not being able to pay for his needs. There is, however, no evidence of any hallucinations, and he recognises his former ideas were largely dependent on his illness. His memory for recent events has improved, but when tested for retention he had forgotten two out of the four tests after an interval of three minutes.

Physically, he is much stronger, has gained 10 lbs. in weight, but his tendon reflexes are still diminished. A letter from his aunt states that the patient had always been a healthy, temperate, steady boy.

His mother had three separate attacks of a mental disorder at child birth, but she made a complete recovery.

Summary.

All of these six cases seemed to have so much in common, and were of such interest, that they have seemed worthy of publication. It is not by any means uncommon to see cases with an amnesia for the period of burial, and lasting often hours or days afterwards; but it is exceedingly uncommon to see cases showing the peculiar confabulatory state here evidenced. How can such cases be accounted for? M'Curdy, in a recent paper on the "War Neuroses," writes as follows:—"Some clinicians are inclined to attribute all the results of such burial to concussion, whereas a more thorough examination of many patients, who have been buried, reveals the fact that there have been no symptoms developed which could not be accounted for on the basis of mental shock, and on the other hand, that there have been none that point definitely to concussion." The close association between cause and effect in the three cases first reported is so striking as to almost certainly put M'Curdy's hypothesis out of count. Furthermore, all of these three cases, up until the accident occurred, had been able to "carry on" as formerly, and in addition the mental picture exhibited by each was much more in the nature of an organic than of a functional type of reaction. These cases, then,

could probably best be looked upon as examples of what Mott has termed "Commotio Cerebri," and the condition in each may possibly have been accentuated by the inhalation of noxious gases.

The other three cases are good examples of a toxic-exhaustive state which have shown a more or less typical Korsakow syndrome.

WAR PSYCHOSES—AMNESIA AS A DEFENCE MECHANISM FOR DESERTION.

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Many instances have been reported in medical and lay literature of individuals who, for one reason or another, consciously or unconsciously, have suddenly left their homes or places of employment, and after a varying space of time have found themselves in a strange environment. This condition has been commonly designated as amnesia. In time of peace amnesia is a symptom of great interest and importance; in time of war it assumes even greater significance, as it is of paramount importance to the soldier to determine whether or not he was conscious or unconcious of his acts. If the soldier is held to be responsible, then a very serious offence has been committed, which is punishable by death or by a long term of imprisonment; if, on the other hand, he is irresponsible, then he is sent to a suitable hospital for investigation of his case, and for further care and treatment. In civil life probably the most frequent instances of amnesia are seen in those who have sustained severe head injuries, and in criminals who, with the utmost regularity, deny all knowledge of the deeds which they have committed. In the army, amnesia is probably most typically met with in those who have attempted suicide or self-mutilation. In this paper I do not intend, however, to dwell on these cases, but rather would I wish to consider those other cases who have left the lines, or their camp, have been arrested as deserters, and

claim a loss of memory for the whole period of their wandering. In some such cases the fugue-like spell may seem to be synonymous with flight or desertion, while in others it can be traced back to fairly definite factors. These cases naturally fall into three large groups—(1) those organically determined, *e.g.*, head trauma, general paralysis, mental deficiency, epilepsy, toxic-exhaustive states; (2) those associated with well-recognised forms of the psychoneuroses, or of functional types of mental disturbance, *e.g.*, manic-depressive insanity, dementia præcox; and (3) those who had never shown any previous special psychotic symptoms, but who later were shown to have developed their amnesia on the basis of complex factors. It is, of course, this latter group which gives rise to a great deal of difficulty, and where the question of responsibility, or lack of it, comes acutely to the fore-front. It has been thought well to report a series of cases embracing all the above groups which I had the opportunity of studying while at the Lord Derby War Hospital, and to briefly consider in each case the factors leading to this grave disorder of conduct, *e.g.*, desertion.

The case which I wish first to report is one in which the etiological factor is fairly patent, but the case is so full of interest that one is warranted in reporting it in detail.

1. A sapper, 30 years, on the night of 28th June 1916, at about 9.30 P.M., arrived at the Gare St Lazare, Paris, by the Le Havre express. "He was drunk, and was conducted to police headquarters. The same night he was taken to the British Detention Hospital, where he appeared dazed, said that he had come from Calais, but that his last clear recollection was of being at a signal depôt at Abbeville." On 2nd July 1916 he was admitted to the General Hospital, Rouen, where he was moody, and lacked interest. The mental specialist's note said: "I consider the patient suffering from dementia. From the history of the case it appears very likely to be an early case of epileptic dementia, and his changes of name and loss of memory are due to minor epilepsy. I do not consider alcohol was a factor." On 25th August 1916 he was admitted to the Lord Derby War Hospital. He was quiet and composed, was natural in his manner, and was able to give an excellent history of himself. He had come from a healthy stock, but when a child he had been nervous, frightened for the dark, and easily startled. There was no history of his walking in his sleep, of night-terrors, or of bed-wetting. At school he did

splendidly, won two scholarships, and in addition interested himself in his comrades, and in games, and was captain of the cricket team. He was not bashful, and his home life was congenial. After leaving school he worked for a time as a clerk on the railway, then went abroad to the West Indies and Cuba, where he worked as a submarine cable operator. He was constantly having friction with his employers, as he felt he was not paid according to his merits. In February 1913, while working for a cable company in New York, one night something happened, and the next thing he knew was that he was in Bellevue Hospital, New York. It was supposed that he had been assaulted and robbed. He was unconscious for several hours, and altogether received about six weeks' hospital treatment. Off and on since that time he has experienced a heavy, squeezing feeling in his head, which has always been accentuated by thunder-storms or by any alcohol which he might chance to take; he had also become more irritable and quick-tempered. After leaving the hospital he returned to England, disappointed because of his failure, and without funds. He again got a position as a clerk on the railway, but one day he was missing, and when he came to he found himself in London: the place where he had been employed was about seventy miles distant from London. He next took a position at Cambridge station, was quite satisfied with his work, and was happy, but about one month later he was again "missing," and it was not until a fortnight later that he was recognised at a place about fifty miles distant from his home. He was unable to give any account of where he had been or of what he had been doing. In August 1914 he enlisted in the Royal Engineers, and in October 1914 was sent to France. He enjoyed his work, and got on well with his officers and comrades. About Christmas 1914 he was sent to General Headquarters to work on wireless, but one day "something must have come over" him, because he suddenly walked away, and four or five days later was arrested by the military police at Boulogne. He was returned to his unit, was court-martialled on a charge of "being absent without leave," and was sentenced to eighteen months hard labour. While serving his sentence on a prison ship he was recognised to be ill, and in March 1915 he was admitted to a hospital in France, where he was for three months. At that time he was worried about his predicament, and eventually a Medical Board diagnosed him as suffering from "hysterical somnambulism," his sentence was

quashed, and he was invalided to Netley. In August 1915 he was discharged from the army. As he was feeling fit again, and as he could not bear to be seen walking around in civilian's clothes, in a few weeks he re-enlisted in the Lincolns, under his mother's maiden name of Parker, and again in February 1916 was sent to France. Owing to his technical knowledge he was transferred to the Royal Engineers. One day while working at a signal depôt he was "missing," and did not come to until arrested by the police in Paris. He did not know where he had come from, or how he had got to Paris, and felt more bewildered than ever when he was told that his name was "Watson." During this time he felt very queer and nervous, and was greatly worried about his change of name, about where he had been, and so on. He was transferred to one of the other Base Hospitals, and then to England. During his hospital residence he complained of frontal headache, giddiness, felt dull, was easily tired, and while reading would become dreamy and lose the gist of the subject. He gave a history of having frequently dreamt about the death of his father. Physically, he had a slight depressed fracture over the vertex, but there were no neurological symptoms, and no disease of his organs. He was in every way so well that he was given parole, but on 19th September 1916 he was absent at roll call, and was not returned to the hospital until 14th October 1916, having been absent for a period of twenty-four days. The police at Biggar, in Lanarkshire, stated that they had found him at the railway station, and as he seemed lost they had taken him to the police station, where he told them that previously he had been in the mental ward of the Lord Derby War Hospital. He had no idea where he was or where he had been, but he thought he must have been in London, because he had a hazy recollection of having seen a Zeppelin brought down. He was very foot-sore, and could hardly walk. On his return to the hospital he again seemed to be in his normal condition. In reference to this soldier's case it might be well to give an abstract of a letter obtained from his father: "I don't remember him showing nervousness as a boy, he mixed well with other children, played cricket, football, &c., and at the school gained scholarships, also received excellent testimonials from the principals when leaving. I think he is hypersensitive and somewhat hasty tempered, but of very generous disposition. It is quite true he had an attack of unconsciousness in New York: I understood the

result of a blow on the back of the head. He also had two or three attacks while employed on the Great Eastern Railway; in these he appears to have become suddenly depressed and unsettled, and left his work, but did not seem to remember anything about it afterwards—dazed, as it were. Everybody spoke well of the excellence of his work. Is it likely the blow on his head affected his nervous system? I have thought so, and so have others acquainted with him."

He was brought before a medical board and discharged from the army.

In this case the history of a severe head injury followed by unconsciousness, the subsequent headaches, giddiness, increased irritability, and amnesic spells would all seem to hang together pretty closely, and would point to the case being one of traumatic insanity. In addition to the factors above mentioned, however, we must remember that in this case we were dealing with a super-sensitive, highly skilled man who left home to better himself, but in 1913 he had to return, having for one reason or another been a failure. It may be that some complex factors, *e.g.*, dreams of death of his father, have been present which one was not able to get at, but the case on the whole seems to have largely been organically determined. Considering all the circumstances, there would seem to be little ground for holding such a man in any way responsible for his absences. His good faith is seen by his re-enlistment, and always at all times he worried about his condition, and frequently requested to be sent back to France.

The next case is one in which a head injury, and subsequent epilepsy, probably played an important rôle, and it, also, is of very considerable interest.

2. A rifleman, 30 years old, who had had one year and four months' service, was arrested by the police, on 22nd August 1916, in Boulogne, as he appeared to be strange in his manner. At Wimereux he was diagnosed as a case of "Delusional Insanity." He is described as having been confused and dazed, did not know what had happened to him, remembered having been at St Eloi, but he had no recollection of ever having left it, or of where he had been to. He did remember being on the outskirts of some town, and of seeing a sign-post with "Boulogne" written on it. On 3rd October 1916 he is described as eccentric, solitary, and suspicious, and never associated with any one. Sometimes he

would appear to be in a dream or trance. Since 1910 he stated that he had been subjected to mysterious happenings, which he thought were due to the influence of the "spirits of the dead." He told about curious somatic sensations, *e.g.*, as if a nail was boring into his head, his heart would seem to melt away like sugar, the calf of his leg would go soft, and cuts would seem to appear and disappear on his hands and wrists in a mysterious way. At times he would feel as if he lost all will power, as if he was not in his body, and he would seem to be unable to see, feel, move, or speak, when something would seem to grip him. He thought all these feelings were due to the influence of the "spirits of the dead." On 25th October 1916 a more detailed history was obtained from him. He had been born in Japan, his father being a Scotchman and his mother a Japanese. He had had a healthy childhood, was not easily frightened, did not suffer from nightmares, and was not a bed-wetter. At school he learned easily and got on well. When 10 years old he received a severe accidental injury to the right side of his head, blood came out of his right ear, and since then he has always been rather deaf in his right ear. Following this accident he did not attend school for one year. At the age of 16 years he was sent to Victoria, British Columbia, to a friend of his father's, and again he attended school for a period of two years. Later he went to the United States, and when 22 years old he suddenly one evening had a dizzy spell, called for assistance, and the whole thing passed off. Following this he was subject at infrequent intervals to transitory spells, when he would feel dizzy and lose his grasp on things for a moment or two. Then gradually, about 1910, while in Buffalo, he seemed more and more to lose his grip on himself, and one night he seemed to see a small light travelling round his room, felt that gas was being pumped into his room, and seemed to smell it. He was taken the same night to the Buffalo State Hospital. For a day or two he felt dazed and tired, then gradually he seemed to again return to his normal condition, and on his discharge, eight months later, he felt in his normal condition. Since that time he has had several spells during which he would seem to lose his memory for a moment or two. In May 1915 he came to England, and enlisted in the London Regiment. During his training he at times would get into trouble owing to his slowness at picking up the words of command, but on the whole he did his drills satisfactorily. On

one occasion, while in London, having lost his temper because he was refused admittance to a certain house, he picked up a stone and threw it through the window; he was arrested, and sentenced to five days' imprisonment. He went to France in May 1916, was in the trenches, and on one occasion after going back to rest he suddenly disappeared, and did not remember anything until he was arrested in Boulogne. He was returned to his unit, taken before the C.O., but was referred to the doctor.

During his residence in this hospital he was quiet and composed, was correctly oriented for time and place, and did not show any evidence of hallucinations or delusions. He stated that most of the things in regard to the spirits of the dead had been suggested to him by the doctor in France. He had not been alcoholic, and there was no history of sexual excess.

Except for impaired hearing in the right ear there were no neurological signs, and no disease of the internal organs.

In discussing his case with him, he stated that until 1910 everything had gone smoothly with him, but that since that time he had had a terribly hard time to live and keep things going.

The case then is one in which at the age of ten years the patient received a severe head injury, followed by impaired hearing in the right ear. Then twelve years later he started to have attacks resembling *petit mal*, followed in 1910 by an outspoken mental disturbance. His rather solitary, suspicious, irritable make-up, and the persistence of transitory spells of unconsciousness, would form a suitable background for his amnesic spell, which is quite in keeping with the general history of the case. How far all of these spells were an outcome of his hard struggle to earn his daily bread would be impossible to decide, unless the patient could have been under observation for a very long period of time. Such a history, however, was sufficient to prove that the patient was of a neuropathic make-up, and irresponsible for his desertion.

In general paralysis of the insane it is well known that not infrequently dull, confused states occur, on account of which the patient may lose himself. I have records of several such cases occurring while the soldier was on active service, but one example will suffice.

3. A private, 37 years old, with seventeen and a half years' service, wandered away from his unit, and was absent for a period

of three days. He was arrested, and returned to England as "a prisoner awaiting trial."

On 28th November 1916, when admitted to this hospital, he was in an elated, euphoric state, and said that he was just as well as he had ever been. He was childish and facile, discrepancies occurred in his memory, he was unable to do simple calculations, and he had no realisation of his disorder. He gave a history of syphilis in 1903.

His pupils reacted sluggishly to light; his speech was slurring; his knee jerks were greatly diminished, and he had tremor of tongue, hands, and facial muscles.

Another group of cases among whom wandering, fugue-like states with amnesia frequently occur are the mental defectives. The mental defective has great difficulty in adapting himself to the ordinary stress and strain of military life, and under shell fire he very easily becomes befuddled, and in consequence is apt to wander away from his unit. This is the type of case which it is not only useless, but dangerous to send on active service.

4. A driver in the Field Artillery, 22 years of age, on 1st August 1916, was charged as follows: "When on active service attempting to desert His Majesty's forces in that, in the field near Steenwerck, on 1st August 1916, at about 9 A.M., he absented himself from "B" Echelon, 4th D.A.C., taking with him his groundsheet, blanket, and equipment, until detained in custody by 61st Division Provost Marshal on or about 4th August 1916."

In July 1916 he had twice been absent for short periods of time. The D.A.D.M.S. examined him, and found him suffering from "mental hebetude, was a man of low mental intelligence, and quite irresponsible for his actions." At Boulogne he was foolish, irresponsible, impulsive, had sudden lapses, when he would wander aimlessly away, and at times he would talk to imaginary people. He stated that one night God had come through the window, and had stood beside his bed. He felt that he was changing, and was becoming holy. At Netley he was dull and confused, his expression was vacant, and he could not give a coherent account of himself.

On 1st January 1917 he was admitted to the Lord Derby War Hospital. He was dull, vacant, and stupid looking, but expressed himself as feeling as well as he had ever done. He remembered going away from his unit, but he was unable to explain his actions

more than by saying "a notion came into my head." When asked if he knew the penalty of desertion, he smiled in a fatuous way and said that he knew that people had been shot for it. At school it had always been difficult for him to learn, and in civil life he had been inefficient, and had never been able to maintain a steady position. He was unable to do the simplest calculations, and when asked a question always repeated it before replying. Physically he was of a low type, but showed no special defects.

5. Another similar case was the following:—

A private, 21 years of age, on 19th September 1916 was put in a dug-out with other twelve men who were to act as divisional runners. He deserted, and was not seen by the sergeant until seven days later, when he was discovered in the guard-room. Following this the medical officer of his regiment described him as weak-minded and childish, and as giving a rambling and disconnected account of his absence. He could not tell the year of his birth, the day, or the month. On 25th November 1916, at Netley, he could not tell when he had enlisted nor when he had gone to France.

On 10th November 1916 he was admitted to the Lord Derby War Hospital. He was dull, quiet, and apparently took little interest in anything. He complained of feeling weak and nervous, and said that at times he was apt to become down-hearted. He could not understand what had gone wrong with him, could remember being in a dug-out, but stated that he had no memory of subsequent events until he found himself in the guard-room. He could not tell when he had gone away, or for how long he had been away. He could not tell the month, but otherwise he was correctly oriented for time and place. He could not tell when he had enlisted, nor when he had gone to France. He made mistakes in doing the simplest calculations. He was simple and childish, and in civil life had never earned more than six shilings per week.

Physically, he had microcephaly, a high, narrow palate, a greatly fissured tongue, but there was no disease of the organs, and no neurological symptoms.

These two cases of mental defect are good examples of many such. These cases, by their foolish actions, are very apt to be a great source of danger to all associated with them, and should be rigidly excluded from the army, or at least from active service.

They, of course, cannot be held responsible for any of their foolhardy and foolish acts.

The last case which I wish to report in this organically determined series of cases is one in which alcohol was apparently the principal etiological factor.

6. A private, 38 years old, on 23rd October 1916 was arrested at the Gare du Nord, Paris, having no pass; he gave a vague account of having lost his regiment, and stated that he was on his way back to Liverpool to find it. On 26th October 1916 a Medical Board certified that he was suffering from "Delusional Insanity," and proceedings were not taken against him. At a General Hospital he was reported as having fixed delusions of persecution and hallucinations. He gave a history of syphilis and excessive alcoholic indulgence.

On 9th January 1917 he was admitted to the Lord Derby War Hospital. He was quiet but worried-looking, and said that he felt down-hearted about being in hospital. He was unable, at all times, to give any clear idea of what had happened to him. He remembered vaguely having been at a Rest Camp for scabies, and said he rejoined his regiment, but all the official records go to show that he never did rejoin his regiment. He told a story of how, when he was moving with his regiment from the base to the front, he got out at a certain station for a drink, and when he returned the train had gone. He had no idea of how he came to arrive in Paris (he has a brother in a responsible position there), and several days must have elapsed between his leaving his regiment and his arrival in Paris. Ever since being in Rouen he has heard "voices" calling him filthy names. He was correctly oriented for time and place. His memory was good both for recent and remote events. He had come of a very good family, had had an excellent education, and had been a man of considerable business capacity. Following an unfortunate marriage with a woman who was socially his inferior, he emigrated to Canada, and while there drank excessively. In August 1915 he returned to England, but at Calgary had to break his journey owing to his having developed delirium tremens, for which he was treated at a hospital in Calgary. In September 1915 he enlisted, and a year later he went to France. Both during his training and while in France he was frequently crimed for being "late on parade," "drunk," "slovenly," and so on. During his hospital

residence he remained worried, apathetic, and down-hearted, and continually heard "voices" accusing him, and calling him filthy names. He was slovenly in his appearance, collected ends of cigarettes lying anywhere about the ward, and showed a very marked general reduction in his mentality.

Physically, in addition to his excessive addiction to alcohol, he gave a history of having acquired syphilis twelve years ago, but over a period of two years he had been thoroughly treated. Except tremor of tongue and hands he showed no neurological symptoms: his Wassermann reaction was negative both with his blood serum and cerebro-spinal fluid.

The main etiological factor in this case was undoubtedly the patient's over-indulgence in alcohol, which had seriously undermined his constitution, and had caused such a general mental reduction that the patient really became irresponsible for his actions.

In the next group of cases, *e.g., psychoneuroses, and cases of functional mental disorder*, we have frequently met with cases of amnesia, but in the cases to be reported the factors are much more complex than in the foregoing group.

7. A private, 22 years old, on 10th May 1916 was arrested and charged with (1) quitting the trenches without permission, and (2) of being deficient of his arms, ammunition, and equipment. He was recognised as nervous and out of sorts, and in consequence was recommended for medical treatment. On 24th May 1916 a medical officer attached to the Field Ambulance stated that the patient was dazed, stupid, and inconsequential, shook and trembled without apparent cause, and was unable to keep his attention fixed on the subject in hand. His intelligence was dull, his speech was hesitating, and his memory for recent events was poor. He complained of "things flying through his head," of "wills" speaking to him, and of hearing his mother's voice. He had no idea in regard to how he had lost his arms and equipment, nor where or when he had left the trenches. The case was looked upon as one of "partial loss of memory, and lack of mental tone." On 3rd June 1916, at General Hospital, he was described as noted above, but in addition he complained of buzzing noises in his head. On 18th June 1916 he was admitted to the Lord Derby War Hospital. He was dull, apathetic, uninterested, very tremulous, and struck one as of poor mental calibre. He said that he did not feel normal,

that his legs were weak, and that he could not walk further than half a mile without having to take a rest. At times he would experience a dull pain in his head, which would seem to make him absent-minded and dreamy, but as a rule he was able to think clearly. He had enlisted in September 1914, and in August 1915 landed at Suvla Bay. While there he had a very hard time of it, was fighting almost every day, and was constantly under shell-fire. After a month of it he became nervous and shaky, was unable to do his work, "everything seemed upside down" with him, it was all like a nightmare, and ultimately he got so that he did not seem to be able to understand orders. He did not hear voices, but had "rushing" noises in his head. Towards the end of September 1915 he was invalided, and after ten weeks' hospital treatment he was sent to a reserve battalion. In March 1916 he was sent to France, and in April was again in the trenches. He was under heavy shell-fire, was up to his knees in water, and suffered greatly from the general discomfort. He had dreaded being again sent into the firing line, and had not been able to take his food. He again became dull, it was difficult for him to do his work, and he felt so dazed that it was almost impossible for him to understand orders. He began to experience "rushing" noises (as if he was in an engine room) in his head, seemed to hear his mother's voice calling him, and had not the faintest idea of how he had lost his arms and equipment, or of how he came to leave the trenches. His whole experience in France seemed "like a dream" until he found himself in hospital in Rouen. While there he became depressed owing to his crime. During his hospital residence he gradually became stronger and better, and made a good readjustment. His history showed that he was the eldest of a family of four. He had always been nervous, was frightened for the dark, but there was no history of sleep-walking nor of bed-wetting. He had always been very shy with girls. At school he had done well, and in civil life he had been an efficient workman earning 30s. per week. His father had died when he was a child, so that the patient was the main support of the family, and there was a very strong attachment between his mother and himself. A letter from his family doctor also sheds light on his make-up: "In April 1914, so far as I remember, I was summoned to attend him on account of 'fits.' I did not see him during one, but found him in a mentally confused state which did not pass off for several

days, when he appeared to have recovered. The boy was markedly neurotic, but my diagnosis did not go beyond that of nerve strain. I was of opinion that he was not epileptic."

This case, then, is a good example of how a highly strung neurotic boy was unable to adapt himself to the exigencies of war. His hallucinations were determined by his attachment to his mother, and his amnesia for leaving the trenches was largely, no doubt, an unconscious defence mechanism to get away from something which he was quite unable to deal with. His nervous break-down on the Peninsula should have been sufficient to prove that this man was unadapted for front-line work, and his subsequent break-down in France was only what might have been expected, and guarded against. He was discharged from the army.

Another case, in some respects similar to the preceding one, is as follows:—

8. A private in the R.A.M.C., 36 years old, on 17th June 1916, had been sent to join the Field Ambulance. On getting to his destination he failed to report, wandered away, and was absent for 48 hours. On coming to himself he realised he had done something wrong, wandered into a billet where there were rifles and ammunition, and was shot in the heel. He was then found and taken to a C.C.S. Owing to his manifest nervous condition he was not charged. He is described as being nervous, frightened, and agitated. He complained of headache, was tremulous generally, and lacked ability to concentrate. He had no delusions. On 28th August 1916 he was admitted to the Lord Derby War Hospital. He was very nervous and shaky, but answered promptly, and co-operated satisfactorily in an examination.

He had enlisted in 1904, had served for seven years, and then had joined the Reserve. In August 1914 he was mobilised, and on 14th August he landed in France. At that time he was attached to the Field Ambulance of the First Division, took part in the retreat from Mons, and in the subsequent campaign for a period of 14 months. In October 1915 he was sent home in a nervous, depressed condition, and at the time suffered from headaches, giddiness, and sleeplessness. After a few weeks' hospital treatment he was recommended for home service. In January 1916 he volunteered again for service in France, and for a time was employed on a hospital train, and then at a base hospital. In June 1916, just about the time when he was ordered to join

the Field Ambulance, he began again to suffer from headache, giddiness, and sleeplessness. He remembers arriving at the rail-head, but then something came over him and he wandered away. On coming to he realised he had committed a grave offence, and determined to end his life. He remembers going into a billet where there were rifles and ammunition, and still maintains that one went off unexpectedly and shot him through the foot. During his stay in the hospital he continued for many weeks to be very nervous and tremulous, at nights was sleepless, and constantly complained of headache and dizziness. He felt depressed about his illness, and about his conduct. He was very easily tired, both mentally and physically, could not keep his attention on books or on newspapers, and could not interest himself in anything. He was slightly suspicious, and had some vague ideas of reference. He was correctly oriented in all fields; he was of good intelligence, and had a fair realisation of his condition.

He described himself as always having been of a very quiet, seclusive disposition, did not make friends easily, and had always been very shy with girls. In civil life he had always worked steadily as a butcher's assistant. In the spring of 1914 he had had a nervous break-down, characterised by headache, insomnia, and giddiness, and in reference to this he said: "It left its mark behind it, sir, and I've never been the same since." At that time he was away from his work for one month.

Here we have a man of neuropathic make-up who, following a long and arduous period of active service, became nervous and unstrung. His spirit, however, was willing, and a few months later he volunteered to again go on active service. There seems to be no reason to doubt that the idea of field service eventually proved too much for him, and his wandering and subsequent nervousness, and determination to commit suicide, were the expression of his poor balance, and of his faulty habits of adjustment. There seems no reason to question the wound through his foot being a conscious attempt at self-mutilation, and his statement regarding his determination to commit suicide is simply a rationalization. It is only when one comes to consider the case *as a whole* that one can say that it would have been unjust to have held this man responsible for his crime.

The next case is one showing a fugue-like state accompanied by a hallucinatory paranoid trend, probably on the basis of complex factors.

9. A private, 37 years old, on 16th July 1916, was found on the Paris express, and was taken to the Stationary Hospital, Boulogne. He was unable to tell his name, unit, or where he had been wounded; he had a gun-shot wound of the left shoulder. On the following day he was transferred to the General Hospital, Wimereux, where he was described as confused and slow, and was completely disoriented for time and place. He imagined that the other men in the hospital were talking about him and his people, and he heard them say that he was a murderer, a bastard, and that his wife was pregnant. Sometimes they would seem to call him a Roman Catholic, at other times a Turk, and a German spy. He felt doubtful in regard to whether he was married or not, as he thought that maybe his wife might have changed her religion.

On 8th September 1916 he was admitted to the Lord Derby War Hospital. He was quiet, orderly, his head felt clear, and he said that he had no complaints. On 28th August 1915 he went to Egypt, and in April 1916 to France. He described the whole matter as having started in June 1916, over his religion, and gave an extraordinary retrospective account of the whole affair. He heard his comrades making remarks about him, his officers seemed to be shouting at him, and they wanted to put him in a prisoner's cage along with some German prisoners. He heard such remarks as: "Rosie, you are a fool—the doctor has put your wife in the family way—you are a dirty Jew and not a Roman Catholic—you are a rogue and a traitor." This seemed to go on for days, and then he laughed and said: "I don't know whether it was a comic court-martial or not." He referred the matter to his captain, who told him to see the doctor, but the doctor, who was a Jew, refused to treat him because he complained about having been kept waiting in the rain. Following this a new programme of annoyances was started, they banged on his dug-out, and seemed constantly to be firing blank cartridges all around. He said: "I think the officers have had pretty good sport out of me." Then a "sham" battle was got up (this was really fighting at Delville Wood); he remembered seeing his lance-corporal hit, he fired his own rifle at an angle of 45 degrees, and then he discovered that he himself had been wounded in the left shoulder. He was directed to a dressing station, and on his way there men with "warblers" seemed to say: "Go and see the doctor—go this

way—go that way." He saw a doctor, who asked him if his wound had been dressed, and when he said that it had (field dressing) the doctor ordered him back to rejoin his regiment. He remembered going through a burning village, but was unable to find his regiment. But a doctor belonging to an artillery unit recognised that he was bewildered, and had him sent to a field ambulance. From this point his story was very difficult to follow, and it was impossible for him to remember how, in the first place, he had ever got to Paris, and from Paris to Boulogne. He could give no details of his journey, nor of the space of time which had elapsed, but he seems to remember that some kind of "warbling" arrangement was attached to the railway carriage in which he was, and this kept repeating: "Rosie, you are going to Paris, and there you will meet Captain M." (the medical officer he thought was hostile to him). When he arrived at Boulogne he was arrested by the military police as he had no ticket, he was marched round the town, and all the people seemed to say: "Oh, he is not a Catholic, he is a Jew." He was taken to General Hospital, and everything that was done there seemed to be for the express purpose of annoying him. The patients behaved as they did because the medical officer had so instructed them; the gramophone seemed to say: "You may go to-day, you may go to-morrow, but if you don't see the doctor you won't go at all." "When I asked for a clean shirt they gave me a dirty one—I was put to bed with dirty sheets—it was all done to annoy me." He supposed that the medical officer was carrying out instructions received from his regimental doctor, and then in a cynical voice he added "Professional etiquette, I suppose." All these annoyances, voices, &c., disappeared a few days after he entered this hospital. He was correctly oriented for time and place. He had had a grammar-school education, and described himself as always having been of a friendly, sociable, optimistic disposition. He went to South Africa in 1901, and after the war remained there; previous to his present enlistment he had been working as overseer in the City Deep Mine at a salary of £32, 10s. per month. In 1911 he married a Christian. He never told his wife he was a Jew, and this rankled with him, because when his wife came to England, about the same time as he did, he had to tell her then that all his relatives were Jews.

Physically he was a well-nourished, muscular man, who gave

a history of an old fracture of the right leg, and in consequence he walked with a slight limp. His left leg was longer than his right, due to an attack of typhoid fever. He showed no neurological symptoms.

This patient was brought before a Medical Board, and discharged from the army. Before the necessary arrangements were completed he took French leave from the hospital, and was away for a period of nineteen days before being arrested by the police at Southport. On being returned to the hospital he was surly, unco-operative, suspicious, and refused to answer any questions in regard to his conduct. He was invalided to South Africa.

It would be exceedingly difficult to tag a one-word diagnosis on to a case such as this, and no useful purpose would be accomplished by so doing. There is no doubt that certain complex factors in regard to his religion and marriage entered into the situation, and these, in addition to the stress and strain of active service, seem to have been responsible for the development of his hallucinatory and paranoid trends, and his befuddled, amnesic state. His condition was such that he was quite irresponsible for his conduct.

Another case showing a schizophrenic reaction type was as follows:—

10. A private, 38 years old, was sent to hospital as a prisoner awaiting trial for desertion. He had deserted on the afternoon of 6th June 1916, and on the evening of 7th June was handed over to a guard at Westoutre, having been found wandering aimlessly by an officer. On 29th June he was admitted to a C.C.S., and there, except for a certain amount of depression, he did not show any signs of mental disease. On 3rd July, at Boulogne, he was called "Delusional Insanity." He was dull and slow, and questions had frequently to be repeated to him. He seldom spoke to any one, and took little interest in what went on around him. His memory for recent events was poor, he had no idea for how long he had been in hospital, was unable to tell what day it was, but he was able to recall remote events promptly enough. He complained of seeing ghosts round his bed at night, and they seemed to stick things in him, but he denied having any auditory hallucinations. On 21st July another note stated that he was still dull, seldom spoke to any one, and

still had a defective memory for recent events. He continued to see visions at night, and now heard voices threatening him and recalling his past life so that he became frightened, and thought about taking his own life. On 11th August 1915 he was admitted to the Lord Derby War Hospital. He was quiet, orderly, behaved in a natural way, and said that he was now feeling well. His head felt clear, his memory, he said, was good, and he considered himself in his normal condition. He had enlisted in August 1914, but after thirteen weeks' service was discharged on account of chronic rheumatism. In April 1915 he re-enlisted, and in November 1915 he was sent to France. On arrival in France he went right "up the line," and while there saw much strenuous active service. The shelling made him nervous and shaky, and latterly he got so that he did not seem to know what he was doing, and seemed to lose his memory. He was quite unable to recall how he had come to leave his unit, or where he had wandered to. It was while he was in hospital that his hallucinations started. The "voices" were not distinct; "it was probably my own thoughts wandering." He had had a normal childhood, and had come from a healthy stock. He had had very little schooling, and in civil life had worked as a collier. No history of neuropathic or psychopathic traits could be elicited. He had had no previous crimes in the army. During his hospital residence he behaved in a perfectly normal manner.

Physically, he showed no disease of his organs, and no neurological symptoms.

The history, in this case, of a gradually developing mental disturbance is very clear, and seems to have been caused entirely by the stress and strain of active service. His resistance became lowered, an amnesia developed, no doubt as a defensive measure, and his latent trends asserted themselves.

All the cases so far reported have shown an amnesia which must be considered in relation to the organic disease, or the neuropathic or psychopathic traits which the patient has exhibited.

In the following cases the amnesia has come, more or less, out of a clear sky, and was the first indication that anything was seriously wrong with the patient.

The first case is one occurring in a man who had not been on active service:—

11. A bandmaster, 36 years old, with twenty-two years' service,

on 11th April 1917 was admitted to the Lord Derby War Hospital with the following report:—"Owing to one of the Band Corps being found to be suffering from syphilis, the D.D.M.S., Western Command, gave instructions to Major Wilson, R.A.M.C., to examine all the members of the band at this depôt. Major Wilson attended on 5th February 1917 at 2 P.M. The band was paraded under charge of the bandmaster. When the bandmaster was informed that *all* the members of the band were to be examined, he objected, saying that he was a Warrant Officer, and did not live in barracks. When pressed he asked to be excused for a few minutes, and as he did not return I made inquiries as to where he was, and found him interviewing the Adjutant, who advised him to comply with the order. He left the orderly room with me, and at the hospital gate said he could not be examined, but when pressed about it he said he would go and get his gaiters off. I told him this was quite unnecessary, but he went away, and did not appear again. Messengers were sent to look for him, but he could not be found. About 3 P.M. I was told that one of the local chemists wished to speak to me on the telephone, but as I was engaged with Major Wilson I did not go. Later the same chemist rang up again, and wanted to know if I had given the bandmaster instructions to buy 25 tabloids of veronal, grs. v. each. My reply was certainly not. He stated that he had informed them that I had sent him to the town for them, and that I was going to give him some. This was quite incorrect. Nothing was seen by me of the bandmaster until the sick parade on 1st March 1917, when he appeared before me as a prisoner. On examination I found him in a very emotional, excited condition. He said he remembered nothing after the parade of the band, until something seemed to give way in his brain, and he found himself in Shaftesbury Avenue, London. I admitted him to hospital for observation. When questioned about syphilis he denied ever having had the disease, but stated that it was 'in the family.' With reference to the veronal, he stated that he had been studying hard for an examination in music, and had been in the habit of taking drugs for sleeplessness. He stated that he remembered nothing about asking for veronal in my name when, on 5th February 1917, he left these barracks. For the first few days in hospital he was in a depressed, emotional condition, slept badly, but I could not find anything seriously wrong with his mental condition. His blood serum gave a positive Wassermann

reaction. He was discharged from hospital on 21st March 1917" (W. R. Main, Captain, R.A.M.C.).

On 11th April 1917 he was admitted to the Lord Derby War Hospital. He answered promptly, co-operated well in an examination, did not show any abnormal emotional condition, but said that he did not seem to be able to concentrate his mind as formerly, and tired easily. He was correctly oriented for time and place, he had a good grasp on current topics, was very natural in all his behaviour, and was able to give a good outline of his life. He stated that his father, or grandfather, must have had syphilis, because his own blood gave a positive Wassermann reaction. He himself denied ever having had any venereal disease. A sister had had meningitis, but recovered, and a brother had had a paralytic stroke. The patient had been strong and robust in childhood, had learned well at school, and enlisted in the army as a drummer when 14 years old. During his twenty-two years' service in the army he had an absolutely clean sheet, and had served in India and Egypt. In 1908 he was promoted to the rank of Sergeant-Drummer, was transferred to the Royal Military School of Music, and after passing his examinations, he was, in 1911, appointed a bandmaster. Since the outbreak of war he had been training boys for band-work, and in addition he was studying for the degree of Bachelor of Music. He then stated that about October 1915 he began to feel worried, was working hard, could not sleep, and in consequence he developed the habit of taking veronal. He started with one tablet, grs. v., but he states that at the beginning of 1917 he would at times during a night take as many as five such tablets. On awakening he never felt refreshed, was worrying and anxious, and unable to fully concentrate his attention. He denied all knowledge of events from 5th to 28th February 1917, and when confronted with the report of Captain Main he denied all remembrance of any of the incidents mentioned. On 28th February 1917, when he did come to himself, he found himself in a cinema show in Shaftesbury Avenue, London, and describes himself as being in a weak, dirty condition. He was much perturbed about his situation, and returned at once to his depôt in the North of England to report himself. On 26th March 1917 he was court-martialled, was acquitted on a plea of "mental lapse," and was sent to hospital for further observation and treatment.

He stated that hard work and over-study were responsible

for his lapse, and except for these matters he denied any special worry or anxiety. He could not tell when or how he had got to London, or how he had spent his time when he was there. For a day or two previous to 5th February he had been feeling more out of sorts than usual, had felt fatigued, and both on 3rd and 4th February had taken veronal, grs. xxv. On 4th February, while in church, it was stated by a sergeant at the court-martial that the patient had kept tapping on a desk with his baton when there was no occasion to do it, and afterwards the vicar sent in a complaint about the disturbance.

In regard to this man's private life, the following information gives an important side-light on the case.

He stated that he had married when 24 years old, but was divorced nine years later. He had taken an action against his wife for unfaithfulness, which was unsuccessful. He refused to live with her; she applied for restitution of her rights, but he refused to comply with the order of the court, and she obtained a divorce on the plea of desertion. There were no children, the patient saying that his wife was sterile. Other information which has been received states that his wife really left him because she had contracted a venereal disease from him. For fifteen months previous to his admission the patient had again been engaged to be married, but in reference to this he stated that he had had it in mind to have anti-syphilitic treatment before actually being married. After leaving his depôt and being sent to hospital the adjutant received two letters from girls wanting to know his whereabouts, as they both said they were engaged to him! He stated that the first time he learned he had syphilis was when his sister was suffering from "cerebral meningitis," which the doctor who treated her said was congenital, but his sister recovered. When asked about the doctor who had treated his sister, he said that the doctor was now dead, and that his sister, shortly after her recovery, had gone to Canada!

Physically, he had a positive Wassermann reaction with the blood serum, but he did not show any neurological signs, and there was no disease of the internal organs.

Such a case immediately brings up the question of genuineness and responsibility. The man was a soldier of good character who had worked himself up to a good position, and had served in the army for twenty-two years. I think that it may be accepted as

a fact that for some considerable period previous to his "mental lapse" he had been out of sorts, and had been addicted to drug (veronal) taking in excessive amounts. Was it possible that this had so befuddled his brain as to make him irresponsible for his actions? When he came to a clear realisation of what he had done he voluntarily returned to his depôt to stand his trial. Was a man who had been so successful in his profession, after a period of twenty-two years service, and while still comparatively young, going to suddenly sacrifice everything owing to, in his case, a rather formal examination? It would not seem reasonable, and simply from considering these facts one would be inclined to say that his amnesia was a true one, and that at the time he was irresponsible.

On the other hand, his conversation with Captain Main, and his objection to the examination—even applying to the adjutant for exemption—and his subsequent conduct, *e.g.*, applying at the chemists for veronal, is so striking as to make one feel that the patient acted with forethought. This feeling becomes accentuated when one considers his personal history, and the fact that his story could not be relied upon. Whatever one may think about his responsibility or irresponsibility, about his consciousness or unconsciousness, it seems clear that his amnesia was a means of defence towards a situation which he was in a fix how to adequately meet.

12. A private, 25 years old, on 17th January 1917 was tried by Field-General Court-Martial and found guilty of absence, but insane at the same time. The facts of this case are as follows:—He had joined the army in 1909, when he was 18 years old, and had done eight years' consecutive service. He had gone to India in 1910, and was there when war broke out. While he was in India he had had sunstroke, but he was unable to give any details in regard to the attack. On one occasion while in India he was sentenced to fifty-six days in prison for threatening to strike a colour-sergeant. He went to France in December 1914, and has been in a great deal of fighting. In February 1915 he had been invalided with a poisoned foot, but in May 1915 he returned to France, and rejoined his battalion. In January 1916 he was blown up at Loos, was unconscious, and was in hospital, but in a day or two he was able to rejoin his battalion. In February 1916 he returned to England on seven days' leave, during which

time he got married, but at the termination of his leave he did not return to France, but quietly stayed at home until May 1916. While he was at home his wife described him as, at times, rather strange in his manner, and as refusing to leave the house. He was morose, gloomy, slightly depressed, and one night his wife found a razor beneath his pillow. Occasionally he would complain of headache; he had a poor appetite, and took very little interest in anything. His wife would upbraid him for not returning to his duty, but never at any time was she able to get much satisfaction out of him. He, however, seemed to remember clearly whatever happened from day to day. When his wife saw him off he seemed in good spirits, but the next word she heard of him was a letter from the War Office saying that he was in Le Havre on account of loss of memory. It was August or September 1916 before his wife had any direct word from him. After being discharged from the hospital at Le Havre he was sent to rejoin his regiment, and it came as a surprise to him when told that on 17th January 1917 he had to appear before a court-martial. At the court-martial he stated on oath that his nerves had been badly shaken at Loos, and that his memory had never been right since. He did not remember ever going home on leave, nor what he had done in the United Kingdom, nor when he had returned to France. "I remember nothing until I found myself in hospital in June at Le Havre, and I was there told I was under arrest." When at Le Havre in June 1916 he is described as having been "in a state of stupor, was dull, listless, and depressed, assumed attitudes, and remained in them for some time. He was unable to give a satisfactory account of himself. In two weeks he had started to improve." As stated previously, he was then sent back to his regiment, and was able to do his duty until tried by Field-General Court-Martial, and again sent to hospital. On 2nd March 1917 he was admitted to the Lord Derby War Hospital. He was quiet and orderly, felt in his normal health, and gave the above-mentioned facts. He was correctly oriented for time and place, and had a good realisation of his position. When questioned in regard to his amnesia from 28th February to 18th May 1916, he denied all memory for that period. He stated further that when he was lying in the hospital at Le Havre, one of the orderlies spoke to him one day about his wife, and produced a photograph which had been in the patient's possession signed by his wife. He had

no knowledge of ever having married until this photograph was shown him.

A paternal uncle had been in an asylum; the patient himself had been tongue-tied until he was 9 years old, and in consequence he did not progress at school, and never reached higher than standard II. He was, however, a bright, intelligent boy who had a good grasp on current topics, and was of good average intelligence.

Physically, he was strong and well built, and showed no disease of the internal organs, and no neurological symptoms.

In this case we have a history of a boy with psychopathic heredity who had been tongue-tied in childhood, and had suffered from an attack of sunstroke in India. In France he had seen a great deal of active service, and in January 1916, at Loos, he had been blown up, and was admitted for a few days to hospital. Shortly afterwards he went on seven days' leave, from which he failed to return for a period of about three months. How can one explain such conduct? Is it possible that following the shell explosion—even although he had been able to rejoin his battalion—his mental faculties had been so affected as to account for such an extraordinary lapse of memory? Rather does it seem to me that here we had a man who had had his fair share of hard knocks, and in consequence he simply could not face up to the idea of returning on active service. He was a regular soldier, and therefore must have been fully cognisant of the serious nature of his defect, and to meet the situation a state of stupor with amnesia developed as a defence mechanism for the period of his absence.

13. A sergeant, 25 years old, had been under open arrest pending a court-martial, but on 1st September 1916 he suddenly disappeared from camp about 10 P.M. and was found wandering near Boulogne. He was unable to give any information about himself. In hospital in France he is described as excited and confused, would not reply to questions, and kept repeating: "Give me my pants—let me go," and made impulsive rushes to get out of the door. His excitement soon quietened down, but he had no idea of how he had been admitted to the hospital, or what he had been doing previously. On 9th December 1916 (while still in France) he was noted as having auditory and visual hallucinations, voices suggested to him that he should take his life, and at night he imagined he saw a hand with a razor which played around his throat. On 21st December 1916 he was admitted to the Lord

Derby War Hospital. He was dull, depressed, but said that he had been gradually getting better. He complained of insomnia and headache, and said that he had really never been quite himself since May 1916. He had enlisted in August 1914, and in February 1915 went to France. In May 1916 at Ypres he was gassed, did not have to go to hospital for it, but following it he suffered from dizziness, could not keep up on the marches, could not digest his food, and coughed. In August 1916, when going up to the trenches, he fell out because of twisting his ankle, and says that he was ordered to go back to the transport lines. Later, however, when the matter was brought to the colonel's notice, the colonel told him he had fallen out without sufficient reason, and ordered him to give up his stripes. This the patient refused to do, and in consequence was put under open arrest, and was warned for a court-martial. He said: "I don't think it came off, sir; I know no more until I found myself in Boulogne taking a cup of cocoa from a nurse." The period from September 1st-9th was a complete blank to him. While in hospital in Boulogne he improved so much that he requested to be returned to duty, and on 20th November 1916 he was sent to Rouen. While on his way there he felt uncomfortable sitting in the carriage with others, and in consequence attempted to throw himself out of the train. He was taken to hospital, where he was frightened to sleep, thought that every one was watching him, and at night would have fearful hallucinations.

During his stay in the Lord Derby War Hospital he made a good readjustment.

He had come from a good stock, had not shown any nervous traits, and previous to the war had been in Canada working on the Grand Trunk Railway. About Christmas 1913 he returned home to be married, but found that his fiancée "had been messing about with other fellows," in consequence of which there was a quarrel, and the engagement was broken off.

Physically, he was a strong, muscular man who had no disease of the internal organs, and no neurological symptoms.

A man who had been an efficient soldier stated that following a "gassing" he had never felt quite himself. For what was thought to be an insufficient reason he fell out when his battalion was on the march to the trenches, and for refusing to obey an order he was put under arrest pending a court-martial. He no doubt clearly realised that he would be severely punished for his

offence, and in face of his situation he suddenly deserted, was absent for a period of eight days, and then developed an amnesia for the whole affair, followed later by definite psychotic symptoms. The question of responsibility or irresponsibility must rest with those presiding at the court-martial, and all I can say here is that his mode of reaction was a splendid example of a defence mechanism.

14. A private, 28 years old, was court-martialled for desertion, but later was found insane, and was regarded as an early case of general paralysis of the insane.

On 22nd December 1917 he was admitted to "D" Block, Royal Victoria Hospital, Netley. He was a Canadian, who denied any neuropathic heredity, and stated that previous to his joining the army he had always enjoyed good health. He had been moderate in regard to alcohol, and denied ever having had any venereal disease. He had enlisted in January 1915, and in August 1916 he went to France. He had been much under shell fire: at first he had not been affected by it, but latterly he had become shaky and nervous. In March 1917, at Vimy Ridge, he left the trenches and reached Boulogne. He could not remember leaving the trenches, but remembered travelling part of the way in a train. Previous to this episode he denied having been any more nervous than formerly, and previously he had never had any such spell. Two days after arriving in Boulogne he voluntarily gave himself up as a deserter. In May 1917 he was court-martialled and was condemned to death, but this sentence was ultimately reduced to one of fifteen years' penal servitude. From May until August 1917 he was in the guard-room, and then was sent to hospital on account of depression because of his situation. It was in September 1917 that he was thought to be an early case of general paralysis.

On admission to Netley he looked sad, said it was difficult for him to take an interest in things, but his head felt clear. He answered promptly, co-operated readily in an examination, and no hallucinations or delusions could be elicited. His memory was good both for remote and recent events, and his general knowledge and ability to calculate were in harmony with his educational opportunities.

Physically, his pupils reacted well to light and on accommodation; his speech did not show any disorder, either spontaneously

or over test works; his tendon reflexes were approximately normal; there was no tremor. On account of the previous tentative diagnosis of general paralysis of the insane it would be necessary, I suppose, to have an examination of the blood and cerebro-spinal fluid before one could feel absolutely sure about this case. Clinically, however, there are no facts on which to base a diagnosis of general paralysis.

The patient had undoubtedly been nervous and shaky, but previous to his wandering away he had not shown any abnormal conduct. How then can such an episode be explained? Should it be held that under the shelling the patient had become so dazed that he became irresponsible for his actions, or should the condition be looked on as wilful desertion? Whether one calls it a fugue or a flight, there seems to be hardly any doubt as to the amnesia being a means of defence towards a situation which could not be adequately met.

Conclusion.

Owing to the serious medico-legal questions involved it has been thought important to report the above series of cases, and to briefly discuss them. In the cases belonging to the organically determined and the functional nervous and mental disorder groups it has usually been easy enough, by means of a careful history, to make sure that the individual in question was unstable, and at the time the amnesia took place was nervously or mentally affected. Particularly in the cases of general paralysis and mental deficiency, it will be readily admitted that the mental disorder has been such that any person so suffering could not be held responsible for their acts. In the other cases belonging to these two groups, *e.g.*, the cases with head injury, alcoholism, psychoneuroses, and schizophrenia, it is a difficult problem to decide how much weight in the production of the amnesia should be given to the head injury, to the alcoholism, and to the various types of mental disorder exhibited, and how much emphasis should be laid on the psychological factors which were also present.

In all of the groups it is easy and, I think, helpful to realise and understand that the amnesia has been a defence reaction towards a situation which could not be met in a healthy, aggressive

way. In the cases belonging to the first two groups this reaction has taken place at a more or less unconscious level; while as regards the last group, it has taken place at a more or less conscious level. How far these last should be held responsible for their acts is open to fair argument on both sides.

Abstracts.

ANATOMY.

THE HISTORY OF THE CAUDATE NUCLEUS AND THE STRIA
(160) **TERMINALIS IN VERTEBRATES.** J. B. JOHNSTON, *Proc. Amer. Assoc. Anatomists*, 1917, Dec. 27, 28, 29 (*Anat. Record*, 1918, xiv., Jan., p. 41).

"THE caudate nucleus consists of two parts, ventral and dorsal, which are distinct in structure and origin and in functional relations. The ventral portion is closely related to the olfactory and par-olfactory nuclei, the bed of the anterior commissure, and the medial part of the amygdaloid complex. The dorsal portion forms the chief part of the ridge which in man is called the "tail" of the caudate nucleus. It is closely related to the lentiform nucleus, especially behind the internal capsule, where these two enter into a common mass lateral to the amygdaloid complex."

"The ventral portion is a part of the olfactory apparatus throughout the vertebrate series. The dorsal portion becomes prominent first in the reptiles, where it forms the dorsal ventricular ridge. Its development in reptiles and mammals shows that it is derived from the lateral border of the pallium. The dorsal portion has fibre connections with the internal capsule and the pallium."

"The stria terminalis is a complex bundle connecting the rostral and caudal parts of the olfactory apparatus. It and the grey mass in which it is embedded (ventral portion of caudate) have been greatly elongated in mammals on account of the increased volume of the internal capsule."

LEONARD J. KIDD.

PHYSIOLOGY.

VASO-DILATOR NERVES OF THE SKIN. H. RICHARDSON and
(161) O. WYATT, *Proc. Amer. Physiol. Soc.*, 1917, Dec. (*Amer. Journ. Physiol.*, 1918, xlv., March, p. 555).

"BAYLISS showed that stimulation of the posterior roots leads to a vaso-dilatation of the vessels of the part. The work of Bruce rendered it very probable that this was a case of axon reflex. Bruce used the inflammatory process as the basis for his work. We have followed the changes using a plethysmograph. If the paw of an animal be placed in a plethysmograph a vaso-dilatation (increased volume of the leg) may be obtained by slow rhythmic stimulation of the peripheral ends of the cut cutaneous nerves outside the plethysmograph, or by the same stimulus applied to the skin inside the plethysmograph. If cocaine be applied to the skin, it is still possible to get a vaso-dilatation from the nerve, but none when the stimulus is applied to the skin."

LEONARD J. KIDD.

THE CAUSE OF MUSCULAR ATROPHY FOLLOWING NERVE
(162) **SECTION.** H. C. STEVENS, *Journ. Amer. Med. Assoc.*, 1918, lxx., March 23, p. 835.

EXPERIMENTS on etherized dogs. The facial, hypoglossal, or the tibial nerves were cut. Best results with hypoglossal, one c.m. of the nerve being removed. In three or four days a fine tremor-like movement is seen under the tip of the tongue on the operated side, especially when the tongue is moist. After seven days more marked rhythmic contractions appear on the dorsum linguæ at the tip; gradually this fibrillation spreads to the root of the tongue. The further changes are described. Stevens adopts the hypothesis that "muscular atrophy" after nerve section "is due to fatigue caused by fibrillar contractions." "That the over-action of muscle may lead to a shrinkage in volume is a well-attested fact. Furthermore, it may be pointed out that the specific gravity of fatigued muscles is less than the specific gravity of normal resting muscles. Also the specific gravity of atrophied muscles is less than the specific gravity of normal resting muscles."

LEONARD J. KIDD.

THE INFLUENCE OF PITUITARY EXTRACTS ON THE DAILY
(163) **OUTPUT OF URINE.** MAURICE H. REES, *Amer. Journ. Physiol.*, 1918, xlv., March, p. 471.

IN both cats and rabbits the daily output of urine varies widely even with a constant food and water supply. On this account it

was found advisable to extend the observations over several days. Conclusions:—

1. Subcutaneous injections of pituitary extract do not alter quantitatively the daily output of urine in cats and rabbits, nor do they cause any marked variation in the specific gravity of the urine.

2. The subcutaneous injection of pituitary extracts causes a delay of seven to eight hours before the beginning of the diuresis which follows the ingestion of large amounts of water. This delay, however, does not cause any variation in the total amount of urine excreted in twenty-four hours.

3. The delay in diuresis which is produced by subcutaneous injection of pituitary extract is due in part at least to a delayed absorption from the alimentary canal.

4. The subcutaneous injection of pituitary extract has no influence on the diuresis induced by a continuous intravenous injection of isotonic salt solution. LEONARD J. KIDD.

PATHOLOGY.

A STUDY OF THE NEUROGLIA IN A CASE OF SARCOMA OF
(164) **THE BRAIN.** CHARLES RICKSHER, *Amer. Journ. Insan.*, 1918, Jan., p. 381.

THE neuroglia cells are described which were found in various parts of the brain in a case of sarcoma, which ran a comparatively rapid course, leading to death within eight months after the first symptoms were noted. Attention is specially drawn to the types of cells found in the medullary part of the brain, which differed in size, shape, and number from the cells one normally finds there. These cells are thought to be phagocytic in their action.

D. K. HENDERSON.

BRAIN CHANGES ASSOCIATED WITH PERNICIOUS ANÆMIA.
(165) HENRY W. WALTMANN, *Proc. Amer. Physiol. Soc.*, 1917, Dec. (*Amer. Journ. Physiol*, 1918, xlv., March, p. 571).

IN seven brains and spinal cords examined Waltmann found changes in the cortex cerebri similar to those recently described by Barrett in pernicious anæmia. Those cases which show a well-marked sub-acute combined sclerosis of the spinal cord are the ones in which these changes can be demonstrated in the cortex. There is a diffuse parenchymatous degeneration of the medullary substance. Many of these degenerative changes are intimately associated with the blood vessels, in the so-called perivascular space of which one often sees a hyalin-like material, probably

containing a toxin, which extends into the areas occupied by the disintegrating white fibres. The writer thinks that the lesser mental disturbances of pernicious anæmia, such as irritability, somnolence, apathy, &c., may be based, in part, upon the pathological lesions found in the cortex. LEONARD J. KIDD.

DISAPPEARANCE OF THE LIPO-CHOLESTERINE OF THE HUMAN ADRENAL IN MOTOR AGITATION. (Disparition des enclaves lipo-cholestériques de la surrénale humaine dans l'agitation motrice.) M. LAIGNEL-LAVASTINE, *Compt. Rend. Soc. de Biol.*, 1918, lxxxi., 13 Avril, p. 324.

(166)

THE writer has found that, when there has been great and prolonged motor agitation in cases of senile dementia, dementia præcox, and maniacal or confusional excitement, necropsy reveals a complete absence of the lipo-cholesterins of the adrenal cortex: the whole of the spongy zone has gone, and no spongiocytes are found in either the glomerular or the fasciculated layer of the cortex. A similar condition is sometimes found apart from motor agitation. Accepting Mulon's teaching that these cortical enclosures are reserves of accumulated lipoids, the writer concludes that intense prolonged motor agitation leads to exhaustion of the labile phosphorated fats of the adrenals. LEONARD J. KIDD.

CLINICAL NEUROLOGY.

LARGE FIBRO-NEUROMA OF THE MEDIAN NERVE. JOHN H. JOPSON, *Trans. Philadelphia Acad. Surgery*, April 2, 1917; *Annals of Surgery*, 1917, lxvi., Oct., p. 503.

(167)

A MALE negro, aged 45, noticed about thirty years ago a small swelling on inner side of left arm following a trauma; no pain, no tenderness on pressure. Very gradually it enlarged. He paid little attention to it till three months before admission in January 1917; then he began to feel pain in that arm, with tingling and stinging sensation in ring and little fingers. Otherwise good health, fine development. On examination, a large, hard, round, symmetrical tumour, the size of a small fist, on inner left arm overlying the vessels midway between axilla and elbow. It was slightly moveable, and lay to inner side of biceps, and apparently was not attached to it: it was not tender on pressure, and examination caused no pain in the distribution. Operation showed the tumour situated in the course of the median nerve. After operation there was loss of sensation on the palmar surface of index and middle fingers, and on the first phalanx of the dorsal surface; also loss of flexion of thumb and index. Discharged 4th February

1917. Re-admitted; undergoing electrical treatment; is improving. Microscopical examination of the tumour shows it to be a rare form, viz., a solitary neuro-fibroma of unusual size, originating from the endoneurium. It shows hyaline and calcareous degeneration, and small foci of necrosis. "The appropriate treatment of endoneural tumour of the solitary type is incision of the enveloping nerve-sheath along the course of the nerve fibres, carefully avoiding division of the same, until the adventitious capsule of the tumour is reached and can be enucleated. This was the procedure practised as far as possible in this case, but, as is evident, there was some disturbance of function of the nerve despite the care which was exercised. This condition is improving, and if no recurrence of the tumour takes place, will probably be almost, if not entirely, overcome."

LEONARD J. KIDD.

ON SYPHILITIC ZOSTER. (Contribution à l'étude du zona syphili-
(168) **tique.)** L. BONER, *Thèses de Paris*, 1916-17, No. 83.

THE thesis contains the histories of seven cases, two of which are original. Among the various infections which may give rise to zoster, syphilis holds an important place, owing to its frequency and the special affinity of the spirochæte for the nervous system. Syphilitic zoster may be met with in different stages of the disease.

1. It may occur early in the course of a primary localisation of the spirochæte on the posterior ganglia, when it heralds an early latent meningitis of the secondary period.

2. At a later stage it reveals the extension of the meningitic process to the posterior ganglia. It may also appear as a sign of incipient or unsuspected tabes or general paralysis.

3. In the course of confirmed specific conditions, such as tabes or general paralysis, the eruption frequently indicates a recrudescence of the activity of the morbid phenomena, and the extension of the spinal lesions. Every syphilitic patient who presents zoster should therefore be kept under careful observation, and should be subjected to a fresh and vigorous treatment, especially if there is a positive Wassermann reaction in the cerebro-spinal fluid.

J. D. ROLLESTON.

A CASE OF HÆMORRHAGIC GLIOMA OF THE SPINAL CORD.
(169) **(Sopra un caso di glioma emorragico del midullo spinale.)** G. ARTOM, *Ric. di Patol. nerv. e ment.*, 1918, xxiii., p. 33.

A MAN, aged 29, who had no history or evidence of syphilis, developed without pain or paræsthesia a spastic paraparesis, which

in the course of three months became a paraplegia, associated with an anæsthesia reaching to a circular line corresponding to the upper border of the 3rd dorsal root, exaggeration of the lower tendon reflexes, and paralysis of the sphincters. Death was due to septicæmia following cystitis and bed sores.

The necropsy showed a diffuse glioma of the dorsal cord extending from the 5th to the 2nd dorsal segment, but prolonged up to the 1st cervical segment in the form of a minute nodule round the central canal. In the part where the gliosis was diffuse a cavity was found which was occupied in its lower portion by a large hæmorrhage. There was no question of trauma or sudden aggravation of the symptoms in this case as in some of those on record, but the course was rapid and progressive.

J. D. ROLLESTON.

A CASE OF BULBAR-MEDULLARY LESION. (Un cas de lésion bulbo-médullaire.) (170) ANDRÉ LÉRI and HENRI SCHAEFFER, *Rev. Neurol.*, 1917, Jan., No. 1, p. 1.

OWING to the rarity of this affection, a case is reported which the authors hold to be more or less unique, owing to the extent of the bulbar-cervical lesions, owing to their being produced by the bursting of a shell, and owing to the fact that such a satisfactory recovery was made that the patient was able to return to the front. The case presented a Millard-Gubler syndrome characterised by a left hemiplegia, flaccidity of the upper limb, spasms of the leg, and a right facial palsy; in addition, there was a marked disorder of phonation, mastication, and swallowing. The paralysis of the limbs almost entirely disappeared, but the bulbar symptoms persisted. The v., vii., viii., ix., x., xi., and xii. cranial nerves were affected. In addition, the lesion extended into the superior cervical region, affecting principally c_2, but also c_3 and c_4.

D. K. HENDERSON.

MEDULLARY PHYSIOPATHIC DISORDERS IN MALARIA. (Troubles physiopathiques médullaires dans le paludisme.) (171) R. MONIER-VINARD, *Rev. Neurol.*, 1917, xxiv., p. 66.

BABINSKI and Froment gave the name physiopathic disorders to a group of symptoms occurring following a peripheral traumatism in a series of cases of reflex paralysis. The author feels that the term may also be used to designate certain disorders of function of the central nervous system in cases of toxic or infectious diseases. Altogether the author has studied sixty-four cases, and draws attention particularly to the following symptoms: muscular cramps, a persistent muscular hypertonic syndrome, a muscular asthenic

syndrome, and asthenic and hypertonic syndrome occurring together in the same patient. Associated with these motor phenomena, various sensory disorders and local circulatory disorders occur. Gauducheau in a special note describes the changes in the electrical reactions occurring in the muscles.

D. K. HENDERSON.

NOTE ON MALARIAL TREMOR. (Note sur le tremblement malarien.) (172) H. DE BRUN, *Bull. de l'Acad. de Méd.*, 1918, lxxix., p. 269.

DE BRUN'S observations were made on malarial patients who had not had any quinine for a long period, and all cases with the slightest suspicion of alcoholism, neurasthenia, exophthalmic goitre, or any other affection capable of producing a tremor, were excluded.

As a general rule both upper limbs are affected in the same degree, though sometimes the oscillations are more marked on one side than on the other. In no case was the tremor strictly limited to the upper limb of one side.

The lower limbs are much less frequently involved. They are never affected alone, and always to a less extent than the upper limbs. It is rare for the tremor to spread beyond the limbs, but occasionally it may be transmitted to the trunk, especially the thorax. In exceptional cases the head is affected by the oscillatory movements of the limbs and trunk, or it very rarely shows a tremor independently. In complete repose the patient presents only a very slight tremor.

The tremor is best developed in intentional movement, especially if this is delicate and precise, as in shaving. The handwriting is affected even in mild cases. A prolonged effort or emotion considerably aggravates the tremor. The malarial tremor is essentially unstable, and frequently undergoes rapid changes in its intensity, not only from one day to another, but even in the same day, often without appreciable cause.

Various nervous symptoms are found associated with the tremor, such as cramps, numbness, formication, and diminution of muscular power.

The efficiency of quinine or strychnine in these cases is only slight.

J. D. ROLLESTON.

CEREBELLAR ELEMENTS IN HEREDITARY TREMOR. (Les éléments cérébelleux du tremblement héréditaire.) (173) E. SCHULMAN, *Rev. Neurol.*, 1917, xxiv., Aug.-Sept., p. 62.

HEREDITARY tremor is characterised by a series of rapid oscillations which are not exaggerated by purposive movements. Two cases

are reported, one in a man 65 years old, and the other in a woman 78 years old. These cases differ from those which have commonly been described owing to the tremor being especially marked in the upper limb, being present at rest, and being accentuated by voluntary movements. Other symptoms present were, *e.g.*, exaggeration of tendon reflexes, asynergia, adiodococinesia, and muscular spasm. D. K. HENDERSON.

JACKSON'S SYNDROME. (Syndrome de Jackson.) ALOYSIO DE
(174) CASTRO and MEIRA GAMA, *Rev. Neurol.*, 1917, xxiv., April-May, p. 149.

A MARRIED woman, 40 years old, six years previously following a child-birth, began to feel her tongue clumsy, painful, difficult to move, and as if it was getting larger. She had difficulty in mastication, in swallowing, and her voice was hoarse. In the space of two months the condition disappeared. In 1912, about two months after the birth of her last child, she again began to suffer from pain in the right upper part of the chest, in the sub-hyoid region, in the spinal and clavicular regions, and especially in the clavical itself towards the sterno-clavicular articulation. She had difficulty in articulation and smelling. There was atrophy of the right side of the tongue; the tongue was projected to the right, and showed a tremor over the right half; in addition, the right half of the palate was immobile; there was paralysis of the right vocal cord, wasting of the right sterno-mastoid muscle, and supra-clavicular hollowing. The right arm could not be fully abducted.

The Jackson syndrome is characterised by an homologous unilateral paralysis of the soft palate, vocal cord, and tongue, with or without an homologous paralysis of the sterno-mastoid and trapezius. D. K. HENDERSON.

ON SO-CALLED TABETIC PRURITUS. (Sul cosidetto prurito
(175) **tabetico.)** C. VIGNOLO-LUTATI, *Gazz. d. Osp.*, 1917, xxxviii., p. 594.

THE writer alludes to the articles of Milian, Lamy (v. *Review*, 1907, v., p. 909), and Bitot (*ibid.*, 1911, ix., p. 626), and records the following personal case. The patient was a man, aged 52, who had contracted syphilis at 24, and had had little treatment. The first symptoms of tabes had appeared at 41. For the past year he had noticed attacks of pruritus, which occurred immediately after the subsidence of a gastric crisis in the epigastrium and abdomen, or in the legs after the lightning pains had disappeared. Each attack of pruritus began regularly towards the evening, and lasted throughout the night with exacerbations of increasing violence, interrupted by brief intervals of rest, and

recurred for two or three nights in succession, resisting all treatment.

Examination during the intervals between the attacks showed the presence of hyperæsthetic zones in the area, which had been the seat of hyperalgesia and pruritus.

J. D. ROLLESTON.

DEATH IN TABES DORSALIS. NOTE ON CAUSES OF DEATH
(176) **AND AVERAGE AGES AT WHICH DEATH OCCURS.**
M. GROSSMAN, *New York Med. Journ.*, 1917, cvi., p. 1029.

THE paper is based on the study of 240 personal cases. Grossman's conclusions are as follows:—

1. The cause of death in tabes is syphilis.
2. Syphilis and tabes lead to death through cardio-vascular and renal disease, and through weakened resistance to non-syphilitic infections.
3. The probable average age at which death occurs is 53 years.
4. The mortality among tabetics over 53 years of age is 238 per 1,000.
5. Tabes is as non-lethal as any form of syphilis.

J. D. ROLLESTON.

CEREBRO-SPINAL MENINGITIS AND SYPHILITIC MENIN-
(177) **GITIS IN A HEREDO-SYPHILITIC PATIENT PRESENTING SECONDARY SYMPTOMS. (Méningite cérébro-spinale et méningite syphilitique chez une hérédo-syphilitique présentant des accidents secondaires.)** F. GERBAY and J. CHEVRON, *Ann. des mal. véner.*, 1917, xii., p. 555.

A GIRL, aged 19, the youngest of a family of eleven, seven of whom had died shortly after birth, and one at 13 of meningitis, had suffered from epileptic attacks since the age of 15. She was admitted to hospital with symptoms of acute meningitis. A generalised roseola was also present. Lumbar puncture gave issue to a turbid fluid containing typical meningococci. The leucocytes consisted mainly of polymorphonuclears (90 per cent.). The lymphocytes were 3 to 4 per cent. The Wassermann reaction in the cerebro-spinal fluid was positive. In spite of repeated lumbar punctures, followed by injection of antimeningococcic serum, death took place, preceded by left facial paralysis, and monoplegia of the left upper limb. No autopsy.

This is probably the first case on record in which the Wassermann reaction has been found positive in a cerebro-spinal fluid containing meningococci. J. D. ROLLESTON.

A CASE OF STREPTOCOCCUS MENINGITIS SUCCESSFULLY
(178) **TREATED WITH NORMAL (HUMAN) SERUM.** F. P. M'CARTHY, *Boston Med. and Surg. Journ.*, 1917, clxxvii., p. 621.

A MAN, aged 25, who had been treated three months previously for a scalp wound, and doubtful fracture of the skull, received a second injury to the head, with symptoms suggesting a lesion extending from the cribriform plate to the middle fossa. The patient was discharged relieved in a month, but a month later was taken ill with a severe chill, and developed signs of meningitis. The cerebro-spinal fluid was purulent and under hypertension. In the course of five days 85 c.c. of normal serum obtained from umbilical cords was injected into the spinal canal. Complete recovery took place except for deafness in the right ear, which resulted from the first injury. This is the first case of streptococcus meningitis treated by a normal serum. There are only nine cases on record of recovery in which streptococci had been found in the spinal fluid. J. D. ROLLESTON.

MENINGEAL REACTIONS IN PREGNANCY. (**Des réactions**
(179) **méningées au cours de l'intoxication gravidique.**) G. DUMOUTET, *Thèses de Paris*, 1916-17, No. 77.

DUMOUTET alludes to Chabbert's thesis on acute aseptic meningitis (*v. Review*, 1908, vi., p. 74), and Fontbonne's thesis on meningeal reactions in certain intoxications (*ibid.*, 1910, viii., p. 622), and records three cases, one of which is original. His conclusions are as follows:—

1. Meningeal reactions in intoxications are as frequent as, if not more so than, in infections.

2. Most authors admit the existence of an intoxication of pregnancy, though the exact nature of the toxæmia is not known.

3. In most cases the intoxication is manifested by uncontrollable vomiting, albuminuria, and eclampsia.

4. In eclampsia a meningeal reaction has been found anatomically, but does not seem to possess special clinical features.

5. The existence of meningeal syndromes due to the intoxication of pregnancy, independent of eclampsia, has not yet been proved.

6. Diagnosis is made by examination of the cerebro-spinal fluid, which shows intact polymorpho-nuclears as in all toxic aseptic meningeal reactions. J. D. ROLLESTON.

ASEPTIC MENINGITIS. (Méningite aseptique.) E. COTTIN and (180) M. V. DEMOLE, *Rev. Neurol.*, 1917, Aug.-Sept., xxiv., p. 51.

A WOMAN, 36 years, on account of severe and persistent abdominal pain, was given an intraspinal injection of 2 c.c. of 0·08 gr. of novocaine. Four hours after the injection meningitic symptoms showed themselves, and the spinal fluid which had been clear at the time of the injection was now purulent and contained numerous polymorphs, but it was sterile and contained no micro-organisms. Five days later the meningitis was better; but the abdominal pain was, if anything, worse. Other cases showing the same phenomena following injections of stovaine, collargol, and sterile water are reported from the literature.

D. K. HENDERSON.

LETHARGIC ENCEPHALITIS. (Encephalitis lethargica.) C. v. (181) ECONOMO, *Wien. klin. Woch.*, 1917, xxx., p. 581.

WRITING in May 1917, Von Economo states that since the previous Christmas he had observed in the Vienna Psychiatric Clinique a large number of cases whose mode of origin and symptomatology justified their inclusion in a special group. The condition was a sort of "sleeping sickness" of protracted course, which usually began suddenly with headache and nausea; a condition of somnolence then set in, often accompanied by violent delirium. The disease might become progressively worse and prove fatal in a few weeks, or remain unchanged for weeks or months, and then be followed by improvement, although the patient would show mental enfeeblement for some time to come.

In the mildest cases, in which there was merely somnolence, this symptom would soon disappear and paralytic phenomena would dominate the scene. Within the first days of the disease symptoms of meningeal irritation would appear, but never in a marked degree. The disease might run its course with fever or without any rise of temperature. Paralysis was an habitual symptom both in the region of the cerebral nerves and also in the extremities. The eye-muscles especially were attacked. A mild degree of ptosis, which at first might be regarded as the physiological sign of somnolence, would gradually develop into a paralytic ptosis, often associated with a partial or complete paralysis of the other branches of the third nerve. Paresis of the other eye muscles might also occur, as well as of other cerebral nerves and paralysis of the extremities with disturbance of the reflexes. A previous epidemic of somnolence, accompanied by delirium, occurred in the nineties in North Italy at the time of

the great outbreak of influenza, but the earliest was in 1712 at Tubingen.

Hypertension of the cerebro-spinal fluid was usually present at the beginning of the disease, but diminished later in spite of the persistence of the somnolence. The number of cells was in most cases within the normal limits. Repeated examinations for micro-organisms were invariably negative. In addition to paralysis and meningeal symptoms, ataxic phenomena were frequently present, suggesting involvement of the cerebellum, as shown in the gait, and a tremor which might be generalised.

In discussing the etiology of the condition the writer excludes food intoxication, owing to the complete absence of gastro-intestinal disturbances, typhoid fever, influenza, and Heine Medin's disease, and concludes that it is a specific disease *sui generis* caused by a living virus resembling, but not identical with, the virus of poliomyelitis. J. D. ROLLESTON.

TOTAL VERBAL AMNESIA AND HOMOLATERAL PARALYSIS FROM HÆMORRHAGE INTO THE TEMPORAL LOBE.

(182) **(Amnesia globale delle parole e paralisi omolaterale da emorragia del lobo temporale.)** F. GIANNULI, *Ric. di Patol. nerv. e ment.*, 1918, xxiii., p. 73.

GIANNULI alludes to his previous paper on tremors of the temporal lobe (*v. Review*, 1916, xiv., p. 80), and that of Mingazzini (*ibid.*, 1915, xiii., p. 114), and records a case of total verbal amnesia, left hemiparesis, and epileptiform convulsions on the left side in a woman, aged 59. The necropsy showed atheroma of the cerebral vessels and aorta, and subcortical hæmorrhage in the second left temporal convolution.

Giannuli's conclusions are as follows:—

1. Total verbal amnesia is a specific aphasic syndrome of the left temporal lobe.

2. Homolateral paralysis may form part of the syndrome of lesions of the temporal lobe.

3. This paralysis illustrates the existence of crossed anatomical relations between the temporal lobe on one side and the Rolandic area in the opposite hemisphere, which are presumably established by callosal tracts crossing in the corpus callosum and passing through the external capsule. This decussation of the tracts in the corpus callosum may, under special circumstances, neutralise the clinical and anatomical effects of the decussation of the pyramidal tracts in the bulb, and give rise to homolateral paralysis.

J. D. ROLLESTON.

CLINICAL AND PATHOLOGICAL CONTRIBUTION TO THE STUDY OF TUMOURS OF THE LENTICULAR NUCLEUS. (Contributo clinico e anatomopatologico allo studio dei tumori del "nucleus lentiformis.") (183) G. FUMAROLA, *Rir. di Pat. nerv. e ment.*, 1917, xxii., p. 473.

FUMAROLA reviews the literature, and records a personal case with the autopsy findings.

His conclusions are as follows:—

1. The diagnosis of tumours of the lenticular nucleus still presents very great difficulty; focal symptoms may be entirely absent, or only appear in advanced stages. Sometimes, however, as in the present case, they may present characteristic phenomena, viz., hemiparesis of a dissociated type, and dysarthria (lenticular syndrome of Mingazzini).

2. The course of the symptoms may aid in the diagnosis, viz., dissociated hemiparesis, dysarthria, hemiplegia, tetraplegia, and in the case of a left-sided lesion, sensory aphasia, which is at first partial and then complete, and lastly total.

3. These tumours may have a long latent period, and then, owing to an internal hæmorrhage or process of softening in the surrounding brain substance, manifest themselves by symptoms.

4. The diagnosis of tumor cerebri in the insane is, as a rule, very difficult, not so much owing to the absence of symptoms, as to the difficulty or impossibility of investigating them.

5. Arteriosclerosis, not excluding tumor cerebri, should lead the medical attendant to make a more thorough examination of the fundus in the aged so as to discover, at least in some cases, hypertension, and thereby to suspect a cerebral tumour.

J. D. ROLLESTON.

FIVE TUMOURS OF THE PONTINE AND CEREBELLAR REGIONS. (Cinq tumeurs de la région pontique et cérébelleuse.) (184) DEMOLE, *Soc. méd. de Genève*, 1918, 3 Avril; *Rev. med. d. l. Suisse Romande*, 1918, xxxviii., Juillet, p. 446.

1. A GLIOMA, the size of a pea, found in the left side of the floor of the fourth ventricle. No symptoms during life. The tumour was composed of neuroglial cells surrounded by a dense fibrillar network.

2. A tumour of the vermis, the size of a cherry, which had destroyed the dentate and the roof nuclei. It was not connected with the ependyma or meninges. It was formed of small round cells juxtaposed without interposition of fibrils (? neuro-blastoma, ? glio-sarcoma). It was found at necropsy of a woman of 49,

admitted for melancholia. No mention of cerebellar symptoms in her history. She died from a strangulated hernia.

3. A cholesteatoma of the left ponto-cerebellar angle, extra-ventricular, situated between cerebellum, bulb, and pons, and formed of transparent masses enclosed in a sac. The microscope shows a germinal layer, uni- or pluri-stratified, formed of pavement epithelial cells inserted on a fine conjunctive membrane, and of desquamated cells with granules of eleidin (keratohyalin); giant epithelial cells here and there; cortex cerebelli slightly atrophied. The tumour was found at necropsy of a man of 58, dead from pneumonia. No nervous symptoms had been present

4. A neuro-fibroma of the right nervus acusticus, cystic and hæmorrhagic, penetrating the enlarged auditory meatus, of the size of a nut. At its periphery it blended with the separated fibres of the nervus acusticus: facial nerve intact. It was formed of a fibrous tissue, with regressive metamorphoses and nuclei "en parade (Vorocay)." It was found in a man of 88, who had suffered from senile dementia and unilateral deafness.

5. A sarcoma of the left nervus acusticus, lobulated, which had blended with and separated the fibres of the nerve, and had penetrated the dilated auditory meatus. It was the size of a large nut. It had invaded the left cerebellar hemisphere, and compressed the left facial and oculomotor nerves. Histologically it is formed of polymorphous cells separated by collagen fibrils: it was very vascular, and had invaded the cerebellum. It was found at the necropsy of a child of eight years who had not been deaf. A week before the sudden death of the child there was hypertension, followed by paralysis of the left facial and oculomotor nerves, vertigo, titubation, and a left Babinski plantar response. LEONARD J. KIDD.

(185) **A STUDY OF FIFTEEN CASES OF BRAIN TUMOUR OF OBSCURE LOCALISATION.** BEVERLEY R. TUCKER, *International Clinics*, 1917, iv., Ser. 27, p. 194 (14 figs.).

ALL these cases were traced from the first diagnosis to the demonstration of the situation of the tumour either by operation or necropsy.

Case 1.—An endothelioma of almost the whole of the left frontal lobe, and a large part of right, in a woman aged 44, which invaded the pituitary. She was said to have grown nine inches in her sixteenth summer. A prominent mental symptom was insatiable curiosity. Tucker has seen this in several other cases of frontal tumours.

Case 2.—A pituitary tumour, with marked mental depression, in an acromegalic woman of 39. Her father died in asylum: her

mother acromegalic. A daughter of the patient, aged 8 years, shows genito-somatic and mental precocity (menstruation at 2 years, &c.). Removal of the pituitary tumour. Suicide during apparent mental recovery.

Case 3.—An infiltrating cystic glioma, in a boy of 4 years, of the right subcortical motor region, the symptoms of which resembled those of cerebral thrombosis. Always had a speech defect; two years ago fell from window; unconscious half an hour, but head apparently not struck. Six weeks ago gradual left hemiplegia. The gradual onset and the absence of signs of increased intracranial pressure led to diagnosis of right capsular thrombosis. Later, vomiting. Two operations over right motor area. *Necropsy* showed tumour was surgically irremovable. Eye symptoms absent throughout.

Case 4.—An endothelioma of the left temporal lobe and a subcortical hæmorrhage in the right hemisphere in a man of 37, who had had syphilis. For fifteen months headache, occasional nausea and vomiting, and mental lethargy. Three months ago left hemiplegia. Double choked disc, R.>L. Stupor, poor attention and memory. Right subtemporal decompression operation showed brain under greatly increased pressure, but no other evidence of tumour was found. Death next day. The right subcortical hæmorrhage interfered with the motor fibres.

Case 5.—A psammoma beginning in the left side of the pineal body in a man of 31, in whom a prominent symptom was bilateral headache and bilateral pain in the face. Mental symptoms appeared early. Radiography showed a calcified mass to left of mid-brain area, also evidence of increased intracranial pressure, manifested by thinning of cranium, &c. Pituitary fossa normal. *Necropsy*—The tumour pressed forward, denting the optic thalamus, was attached to and involved the under surface of the corpus callosum, and slightly infiltrated the mesial aspect of the lenticular nucleus. It was situated chiefly in the left hemisphere. The globulin of the spinal fluid was increased, at first slightly, but greatly later. Absence of intra-ocular signs and of the thalamic syndrome. Normal blood-pressure.

Case 6.—A right subcortical temporal tumour, in a man of 47, which resembled cerebral abscess. Patient has one feeble-minded child (three healthy). At 12 years of age was knocked unconscious for twelve hours. No scar found. Six months ago dull, stupid. One month ago vomiting, vertigo, headache. Hearing variable. No otorrhœal history. Left-sided spastic weakness. Doubtful L. Babinski. Absent, abdominal reflexes. R.K.J. absent, L. active. R. pupil>L. Double choked disc. A right subtemporal tumour was diagnosed by Tucker in preference to

abscess. Right decompression operation showed brain under great pressure, but no tumour found. Three days later re-exploration negative; death next day. *Necropsy*—An infiltrating endothelioma on right side of temporal sub-cortex, under the operative site. "Diagnosis between tumour and abscess in the temporal region in the presence of increased temperature" (patient's temperature varied from 98° to 100·6°) "is certainly difficult, but if the ears are normal, and there is no history of running ear in the past, and the patient is suffering from no acute infectious disease, and no focal sign of pus can be found elsewhere in the body, the diagnosis is in favour of tumour."

Case 7.—A woman, 55, whose left breast had been removed nine months previously for carcinoma. Its interest lay in the fact that whereas the diagnosis was of a single carcinomatous tumour of the brain, unlocalisable, necropsy showed some twenty multiple metastatic endotheliomatous growths, from $\frac{1}{4}$ to $\frac{3}{4}$ in. in diameter, in both hemispheres. Three months before admission, right frontal headache, vomiting, vertigo. *Examination*—Mental reactions retarded, confusion, station poor, gait unsteady. Both K.J. plus. Bilateral Babinski. Lower extremities inco-ordinate. Sluggish pupils. Diplopia. Fundi only congested retinal veins. Bilateral paresis of third and fourth cranial nerves.

Case 8.—A large left frontal tumour of the motor area involving the opposite hemisphere, in a patient who showed atrophy of the right arm and shoulder. A man, 37. Malaria five years ago. Five weeks before examination gradual right hemiplegia, first face, then arm, then leg. Numbness right thumb and part of right forearm. Some fibrillary twitchings in muscles of right side of body. Doubtful R. Babinski. Much atrophy, right thenars and hypothenars; some in shoulder muscles, especially trapezius. R. arm ataxic. Partial R.D. of affected muscles. Bilateral fine hand tremor. Slight aphasia, speech mumbling. Slight nystagmus to R. Disc margins somewhat blurred. R. face paresis, R. nerve-deafness, tongue out to R. Indefinite lapses of memory. Scar on scalp over left cortical arm area, believed by patient to date from birth. Operation. No tumour found. Brain under moderately increased pressure. Three months later a second operation over previous site. A large infiltrating glioma found, occupying the middle three-fourths of L. hemisphere, extending over to and involving R. (The spinal cord could not be examined, so the nature of the muscular atrophy and fibrillary twitchings is unknown.) Tucker's diagnosis of brain tumour was based on the gradually extending R. paralysis, slight aphasia, marginal disc-blurring, doubtful Babinski, slight nystagmus to R., R. nerve-deafness, tongue to R.,

slightly plus spinal pressure, and the scalp scar over L. motor area.

Case 9.—A rapidly growing right temporo-sphenoidal infiltrating endothelioma which blocked the Sylvian aqueduct, and extended into the right occipital lobe. A man, 26. For a month or more pain R. side of head to face; some nausea; twice causeless vomiting; vertigo. With the headache had a subjective smell of a strong medicine in R. nostril. *Examination*—Slight R. Babinski and suspicion of clonus before lumbar puncture (both disappeared after the puncture); fine hand tremor; articulation deliberate; double choked disc, R. > L.; R. ear diminished bone conduction; mental hebetude; negative Wassermann blood and spinal fluid. Spinal fluid increased pressure, negative for globulin, cells negative. *Diagnosis*—Deep-seated R. temporo-sphenoidal tumour affecting uncinate gyrus. Next day, coma; next day, R. subtemporal decompression showed greatly increased intracranial pressure; death next day. *Necropsy*—Much dilatation of L. lateral ventricle; no fluid in R. The growth, $2\frac{1}{2} \times 1\frac{1}{2}$ in., extended from anterior part of R. occipital lobe downward and forward deeply into mid-brain region. It was surgically irremovable. "The hallucinations of smell were due to neighbourhood pressure, rather than direct pressure on the uncinate gyrus." Tucker attributes the rapid development of symptoms to blocking of the aqueduct by the growth, and the facial pain—a prominent feature of the case—to pressure irritation of the Gasserian ganglion. "The dilated lateral ventricle was on the side opposite the lesion, and the ventricle on that side was blocked."

Case 10.—A tumour of the left ponto-cerebellar angle, with bilateral loss of the sense of smell and diminution of the sense of taste. Woman, 23, seen April 1911. Always quick-tempered and emotional, with alternations of depression and exaltation. Four years ago pertussis, soon followed by severe pain in back of neck, and nausea. A year ago pain severer, with vomiting. Short periods of loss of vision during exacerbations of headache. *Examination*—Pupils dilated, fair reactions; nystagmus in all directions; bilateral early post-neuritic optic atrophy; bilateral anosmia; great bilateral hypogensia; paralysis of L. recurrent laryngeal; L. ear deaf; L. naso-labial fold > R.; head slightly to L. shoulder; L. pharyngeal sensibility almost lost; station unsteady (eyes shut or open), staggering to either side in walking; vertigo on quick turning. Both upper extremities inco-ordinate; slight attempt at R. ankle clonus. *Diagnosis*—Tumour of L. ponto-cerebellar angle. Operation 1st May 1911; a circumscribed endothelioma removed from that region. Six years later patient was reported to have lost

sight, hearing, taste, and smell on L. side; bad vision, R.; no headaches; good health; never able to stand alone. "In this case the symptoms of tumour dated back to pertussis. The sense of smell returned after the operation. The sixth nerve was not affected. The first, second, fifth, seventh, eighth, ninth, and possibly the tenth nerves were more or less affected. An operation, which at least gave her relief from pain and nausea, returned her sense of smell, and preserved her intelligence, was highly justifiable."

Case 11.—A right subcortical cystic glioma resembling cortical hæmorrhage, involving the motor and sensory areas, operated on with recovery. Man, 19. When four years old thrown from horse; unconscious half an hour. Three weeks ago gradual loss of power in L. face, then L. arm, and in a week L. leg. For two weeks severe headache and failing sight; no nausea, vomiting, or vertigo. *Examination*—Moderate optic neuritis, and possibly some atrophy; weakness of seventh and twelfth nerves; slight paresis L. third; lessened sensation in L. fifth area; L. Babinski; general sensory and motor loss on L. face, arm, and leg; no aphasia; L.K.J. plus; sphincters normal; mental hebetude, poor memory; blood negative; spinal fluid greatly increased pressure, but negative Wassermann, cell count, globulin. *Diagnosis*—A rapidly growing tumour in R. hemisphere, catching the motor and sensory radiations between cortex and capsule. *Operation*—R. motor and parietal region exposed; the tumour found there. In a few months patient returned to work quite well. In this case cortical hæmorrhage was thought of, "for within less than two weeks he was markedly hemiplegic. However, the normal blood-pressure, negative Wassermann, and absence of history of immediate injury were against the diagnosis of hæmorrhage."

Case 12.—A tumour of the ponto-cerebellar angle with but few cranial nerve symptoms attached to the pons, and indenting the under surface of the cerebellum. Boy, 13. A year ago fell from bar, struck back of head, was dazed for a few minutes. Six weeks ago operation for adenoids and tonsillectomy, followed in a few days by paralysis of R. external rectus, and a week later of L. Soon afterwards nausea, vomiting, vertigo, frontal headache, numbness, and tingling of L. arm and leg. *Examination*—Station poor, gait unsteady, both with lurching to L. K.J. plus, L > R. Elbow-jerks plus; abdominal reflexes minus; Babinski and clonus both greater on L.; marked ataxia; slight ptosis, more on L.; unable to converge (myopic); only cranial nerve palsies were paresis both sixths, ptosis, L. nerve deafness. Spinal fluid increased pressure, negative Wassermann, globulin, and cell

count; normal mentality; X-ray skull negative; blood pressure normal. *Diagnosis*—A tumour in or near ponto-cerebellar angle. Operation to expose angle had to be discontinued, as boy's condition became bad. Death next day. *Necropsy*—A large, surgically inoperable glioma found; it passed directly on the ninth, tenth, and eleventh nerves; was attached to pons. It had stretched the seventh and eighth nerves, and had by pressure made a depression on surface of cerebellum, but had not infiltrated either cerebellar hemisphere. Diagnosis was difficult, for choked disc never appeared, cranial nerve symptoms were limited to two (sixth and eighth), and the headache was frontal. But the ataxia, nystagmus, and the sixth and eighth nerve palsy were thought sufficient to localise the lesion in the ponto-cerebellar angle. "The symptoms were rapid in development, and seemed to have some relation to a blow on the head a year before."

Case 13.—A tumour of the right ponto-cerebellar angle which had been mistaken for the cerebello-bulbar type of poliomyelitis. Boy, 5½ years. Eight weeks ago fell from sofa; struck head on a toy iron train of cars. No scar to show the injury. This fall was followed by an attack of vomiting and other digestive disturbances, and from time to time since he had had general headache and vomiting. Sometimes this vomiting was thought to be due to his food or medicine, at other times it was causeless. No vertigo. Two or three weeks after accident eyes were noted to be not straight, he had some difficulty in walking, and his R. face drooped. *Examination*—R. facial palsy, decided paresis R. sixth, poor station, doubtful L. Babinski, slightly ataxic gait, no clonus, plus K.J. and E.J., diplopia, and some nystagmoid jerkings. Three days later L. Babinski prominent; attempt at L. clonus. No astereognosis. No eighth nerve palsy. Fundi only some venous congestion. A week later, cerebellar gait, ataxia increased, once or twice had vomited without cause; no vertigo; station worse; much R. deafness; R. motor 5th slightly weak; Wassermann negative, blood and spinal fluid (cell count and globulin negative on fluid). *Diagnosis*—Right ponto-cerebellar growth. Another neurologist diagnosed the cerebello-bulbar type of acute poliomyelitis on the grounds that the attack at the onset six weeks ago occurred during the New York poliomyelitis epidemic, and was ushered in by acidosis with constipation, vomiting, &c., "and probably some fever, but I could not get any record of this." At operation, Tucker's diagnosis of right ponto-cerebellar tumour was confirmed. A second operation thirteen days later. Death three months later. Necropsy was refused. Throughout, Tucker adhered to his diagnosis because of the persistent headache and vomiting, the fact that the cranial nerves became

involved one after another, and because the boy became progressively worse instead of better. He notes the absence throughout of optic nerve signs, and the interesting fact of a blow on the head at the onset of symptoms. (The neurologist mentioned that he had changed his diagnosis, and had seen the tumour of the R. ponto-cerebellar angle at the first operation.)

Case 14.—A tumour of the right post-central frontal region resembling a cerebral abscess. Man, 56. Sent to Tucker as case of G.P.I. Five months ago possible grippe; afternoon temperature since then. No otorrhœal history; no X-ray evidence of middle ear disease. Constipation; loss of weight (10 pounds in 3 weeks) though appetite voracious; sleep poor; occasional clonic tremor L. leg; some tongue tremor; double Babinski; considerable muscular rigidity; pupils sluggish, of normal shape and size; speech slow, tendency to repeat what he said; memory poor, nervous, confused; blurring nasal half of each disc; X-ray skull shows flattened pituitary fossa, but no evidence of abscess or tumour; spinal fluid much increased pressure (cell count, globulin, Wassermann negative); blood Wassermann negative; blood pressure averaged about 150. *Blood*—8000 leucocytes, negative smear for malaria, polymorphonuclears 80 per cent. Pulse 80 to 100. Temperature between 98° and 100·5°. *Diagnosis*—Either abscess or tumour in right temporo-sphenoidal region. *Operation*—Brain considerable pressure, veins distended, dura darker than usual. No abscess found by needling, no increased resistance which might indicate a tumour. Death several days after operation. *Necropsy* (limited to head)—A glioma, 1½ inches diameter, soft, in right frontal region just behind the centre. Here paresis was rejected at the first examination. Abscess was suggested by daily rise of temperature, and the history of the symptoms beginning with some infectious condition, together with the brain pressure-symptoms. A temporo-sphenoidal location was thought of because of the few reflex signs and the paralytic changes. "A frontal growth, however, should have been thought of in view of the mental symptoms and the increase in muscle-tone to which Mills recently called attention." Tucker notes the absence of nausea, vomiting, vertigo, headache, or true choked disc throughout. Possibly the pyrexia may have been of pulmonary origin.

Case 15.—A tumour of the superior surface of the cerebellum in which the diagnosis of acute hydrocephalus had to be excluded. Boy, 8 years. Diphtheria at two. Three weeks ago, while playing, head became caught in a well-top. The blow was not violent, but there was much pressure on back of head for a few moments. After this he complained of pain in back of head;

after about a week began to vomit at intervals. A few days later, vertigo and malaise; a week later went to bed, chiefly because of increased vertigo, vomiting, drowsiness. *Examination*—Well-nourished; gait unsteady but not otherwise peculiar; some stomatitis; head large, forehead prominent (said to be a family characteristic); superficial reflexes normal; K.J. both diminished; no clonus or Babinski; slight double Kernig; abdominal muscles a little rigid; some ataxia and "over-reaching" of all four limbs; tongue slightly to L.; considerable hypersensitiveness of feet and deep thigh and leg muscles; no hypertonia; spine straight, not rigid; pupils normal; no nystagmus, ptosis, diplopia, or exophthalmos; in both retinæ a number of small hæmorrhages, slight papillitis, and enlarged tortuous veins. Blood, 8,100 leucocytes, 81 per cent. polymorphonuclears; urine normal; spinal fluid under pressure, negative Wassermann, globulin, cell count, and bacteriologically. After the lumbar puncture a L. Babinski appeared for a few days, and then went. Mental condition brightened greatly after this puncture, but in a few days drowsiness, vertigo, and vomiting again. A week after first examination, a preliminary R. subtemporal decompression; brain found to be congested, dura tense, much fluid withdrawn. Boy did well for thirty-six hours, then died suddenly of medullary failure, thought to be due to a shift in position of the tumour. *Necropsy*—A large gliosarcoma on posterior-superior aspect of cerebellum, attached to and slightly involving the cerebellar cortex, especially on R. "This case is of interest mainly because the boy was a healthy country lad who showed no symptoms of any illness until after a slight injury to the back of the head just one month previous to his death. This might make one expect to find a hæmatoma, but instead there was a large, soft, white gliosarcoma with no evidence of hæmorrhagic origin." One consultant diagnosed the acute hydrocephalus described by Oppenheim and others, but Tucker adhered to his diagnosis of cerebellar growth.

In his general discussion of this series of cases Tucker refers to, among others, the fact that the blood-pressure was not increased in a single one, the highest being 150 in a man of 56. Lumbar puncture had as its chief effect lessening of severity of symptoms. Spinal fluid pressure was thought to be increased in all, globulin reaction was increased without evidence of syphilis in cases 1 and 6, and there was an increased cell count in case 6. The apparent rapidity of the growth of these tumours is striking. The history of injury is very striking. At times there is a definite relationship between brain tumour and infectious disease. The value of radiography in brain tumour diagnosis is seen in four out of five

selected cases. Headache was relieved by lumbar or ventricular puncture, or decompression. Choked disc or optic neuritis was a very late sign in most of the eight cases in which it was present. Elevation of temperature may be confusing in brain tumour, and make one think of abscess, as in case 14. In brain tumours invading the motor area, as in cases 4, 8, 11, the mode of involvement was a gradual extension from one centre to another, not the more or less rapid diffused hemiplegia seen in cerebral hæmorrhage or thrombosis.

Among Tucker's conclusions one may select the following:—Brain tumours may resemble various organic and functional conditions; do not of themselves affect the blood-pressure; may invade the tissue of the opposite hemisphere; may attain great size without many manifestations of increased intracranial pressure. Rapidity in development of symptoms does not militate against the diagnosis of brain tumour. Lumbar puncture, when carefully performed, is not dangerous in brain tumour cases. Any or all of the so-called cardinal symptoms—headache, vomiting, vertigo, and optic neuritis—may be absent in brain tumours. The finding of a positive Wassermann reaction does not necessarily mean that a tumour is gummatous. The globulin content in the cerebro-spinal fluid usually is not increased in the presence of brain tumour, but may be. Operative intervention directed towards the removal of the growth is justifiable in most cases of brain tumour, and offers the only hope of permanent relief. It is probable that, when a tumour of the brain follows an injury, pathologically it will be found to be a glioma.

LEONARD J. KIDD.

OCCURRENCE OF MILK SECRETION IN ACROMEGALY. (186) **(Auftreten von Milchsekretion bei einem an Akromegalie leidenden Patienten.)** O. ROTH, *Berl. klin. Woch.*, 1918, lv., p. 305.

THE patient was a man, aged 28, in whom the occurrence of the milk secretion was confirmed by microscopical examination and chemical analysis.

Roth regards the case as an example of the combination of acromegaly with pituitary dystrophy, rather than as one of pure acromegaly.

J. D. ROLLESTON.

ON SO-CALLED PITUITARY POLYURIA. (**Sur la polyurie soi-disant hypophysaire.**) (187) B. A. HOUSSAY, *Compt. Rend. Soc. de Biol.*, 1918, lxxxi., 13 Avril, p. 381 (1 fig.).

EXPERIMENTS by Houssay extending over many years, chiefly in dogs, but also rabbits and guinea-pigs, confirm the findings of

Camus and Roussy that there is in the base of the brain an area, puncture of which gives polyuria invariably: this area extends well behind and in front of the pituitary body and slightly beyond its lateral borders. The action of pituitary extracts is very variable on the kidneys, and varies according to its mode of preparation. In the rabbit they produce oliguria invariably; so too in the guinea-pig. In man they are variable, and markedly in the dog. In adult dogs complete pituitary removal—proved to be complete by microscopical serial sections of the infundibular region and sella turcica—gives almost constant oliguria: this occurs even when the pituitary is untouched in a dummy operation. But in young dogs the same operation produces almost constant polyuria. Puncture of the base of the brain, in dogs, outside the limits of the circum-pituitary basal area of Camus and Roussy, never gives polyuria. (The technique of these two observers was followed.) LEONARD J. KIDD.

SPINAL PUNCTURE IN DIABETES INSIPIDUS. EVARTS A. (188) GRAHAM, *Journ. Amer. Med. Assoc.*, 1917, lxix., Nov. 3, p. 1498 (2 figs.).

A MAN of 24 consulted Graham on 22nd June 1916 for dizziness, headache, extreme thirst, and the passing of enormous quantities of urine. On 13th March his chest was injured by an iron bar; he thinks he was unconscious for a few minutes, but knows of no head injury. His sternum and two ribs were fractured. Early in April severe headache and dizziness every day; the pain was fronto-temporal, and sometimes retro-ocular, severe cutting pains sometimes going up through ears. Seldom nausea or vomiting. Towards end of April, polyuria, great thirst, poor appetite, much loss of weight (25 lbs., he says). On 24th June lumbar puncture gave issue to fluid which shot out in a steady stream for 8 to 12 inches; some was lost, but over half an ounce was saved; the needle was withdrawn. He immediately said his headache and dizziness were entirely gone, though they had been pronounced before the puncture. It remains obscure what rendered the pressure of his spinal fluid so great. A skiagram shows a marked narrowing of the upper margin of the sella turcica; the distance between the anterior and posterior clinoid processes was only 2 mm., instead of the usual 10 to 14 mm. But Graham points out that this is not conclusive evidence that the sella was narrowed to the extent of providing pressure on the pituitary, though he regards his case as due to pituitary disturbance. LEONARD J. KIDD.

MENTAL PUERILISMUS. (Un cas de puérilisme mental.) RÉNE (189) CHARPENTIER, *Rev. Neurol.*, 1917, xxiv., p. 296.

THIS condition must not be confounded with infantilism, with the childishness of seniles, or with puerility. Puerility is a symptom, whilst mental puerilismus is a syndrome characterised by an anomaly of the whole personality. Three main types can be differentiated: (1) confused, (2) demented, (3) constitutional. The confusional type is defined as a change in the personality characterised by delirium, and mental confusion due most frequently to infective or toxic disorders. The memory is lost for everything later than the period of infancy. The author questions the possibility of the existence of hysterical delirium, and maintains that it is simply the mask of a hebephrenic-catatonic state. The mental puerilismus which has been called hysterical is simply the confusional type of mental puerilismus. The demented type consists of a regressive mental change with acquired intellectual enfeeblement. The constitutional type is due to an arrest of intellectual development. A case of the confused type is described in detail. D. K. HENDERSON.

CLINICAL AND ANATOMICAL ANALYSIS OF TWO CASES OF MULTIPLE SCLEROSIS. LAWSON G. LOWREY, *Amer. Journ. Insan.*, 1918, Jan., p. 395.

(190)

CASE 1 was a man, 26 years old, who had a history of numerous convulsions, and at autopsy an area of gliosis was found in the left parietal lobe, together with patchy gliosis in the cord. Case 2 was a girl, 19 years old, who had led an immoral life; she had a pleocytosis, and an increase of globulin, but the Wassermann reaction was negative in blood and cerebro-spinal fluid. The autopsy showed a meningitis of mild grade, together with an extremely pronounced multiple sclerosis. D. K. HENDERSON.

PROGRESSIVE MUSCULAR DYSTROPHY. FRANCIS H. M'CRUDDEN, *Journ. Amer. Med. Assoc.*, 1918, lxx., April 27, p. 1216.

(191)

"IN progressive muscular dystrophy we find low blood sugar, and, following treatment which increases the blood sugar, an improvement in muscular strength." The writer concludes that "the myasthenia of progressive muscular dystrophy is due to hypoglycæmia, and the hypoglycæmia and fat deposition to impaired glycogenesis, the carbohydrate of the food being probably changed largely to fat instead of to glycogen. The impaired glycogenesis is due to suprarenal or other endocrine disease."

LEONARD J. KIDD.

THE ASSOCIATION OF NEURITIS AND MYALGIA WITH SUB-
(192) **NORMAL TEMPERATURE.** SYDNEY KENT, *The Practitioner*, 1917, xcix., Dec., p. 575.

KENT finds that the temperature is invariably sub-normal in lumbago, sciatica, and in all neuritis which is not complicated by, or symptomatic of, some febrile disease. He rejects the whole salicylate group of drugs, which depress the temperature still lower; though they often give relief, he regards them as "placebos." He goes on the rational plan of re-heating the blood-stream. So he gives fatty foods, as bacon, cream, and butter, supplemented by olive oil by mouth, a tablespoonful after each meal. Cases are recorded which show cure in the course of a few days to a few weeks. Kent has noted a great increase in the diseases named owing to the enforced reduction in diet during war-time.

LEONARD J. KIDD.

RECENT ACQUISITIONS TO THE SYMPTOMATOLOGY OF
(193) **MEDICAL SCIATICA. (Les acquisitions récentes de la symptomatologie des sciatiques médicalées.)** P. AULAGNIER, *Thèses de Paris*, 1916-17, No. 62.

THE author draws attention to the following signs:—

1. Modification of the ankle jerk (Babinski), which Aulagnier found abolished in about half the cases.
2. Modification or abolition of the other reflexes of the lower limb (medio-plantar, tensor fasciæ femoris, &c.).
3. Dissociation of these reactions and the ankle jerk.
4. Sign of the flexion of the second phalanx of the great toe on percussion of the tendo Achillis (Boveri).
5. Phenomena indicating irritation of the region of the lumbar plexus; modification, usually exaggeration, of the knee jerk, cremasteric reflex, and especially of the abdominal reflex (Pisani's sign).
6. Inversion of the reflexes indicating a localised radicular lesion.
7. Frequent exaggeration of idio-muscular contractility.
8. Sign of elevation of the heel on the affected side (Sicard).
9. Limitation of flexion of the trunk by Neri's method.
10. Excess of albumin in the cerebro-spinal fluid.

J. D. ROLLESTON.

HEAD TRAUMA AND SYPHILIS. (Traumatismes cerébraux et
(194) **syphilis.)** L. BABONNEIX and H. DAVID, *Rev. Neurol.*, 1917, xxiv., p. 277.

FOUR cases are reported of head injury associated with a positive Wassermann reaction in the spinal fluid. In contrast three other

cases of head injury are reported in whom the Wassermann reaction was negative, but in one there was an increase of lymphocytes, and in two a positive globulin reaction. The main conclusion reached is that sluggish pupils, lymphocytosis, and excess of globulin are not sufficient to enable one to diagnose syphilis of the nervous system, as these signs may be found in whole or in part in simple head traumata. The Wassermann reaction should be done whenever possible. D. K. HENDERSON.

THE PATHOLOGICAL LIAR. FRANK A. ELY, *Chicago Med. Recorder*, (195) 1917, xxxix., Nov., p. 502.

"THE pathological liar is a social misfit whose mental defects cannot be detected by the Binet-Simon tests alone, and yet, when subjected to more technical psychological investigation, and when judged by the character of their anti-social conduct, may be quite definitely classified as sub-normal." Healy's definition is given :— "Pathological-lying is falsification entirely disproportionate to any discernible end in view, engaged in by a person who, at the time of observation, cannot definitely be declared insane, feeble-minded, or epileptic. Such lying rarely, if ever, centres about a single event: although exhibited in very occasional cases for a short time, it manifests itself most frequently by far over a period of years, or even a life-time. It represents a trait rather than an episode. Extensive, very complicated fabrications may be evolved. This has led to synonyms: mythomania, pseudologia phantastica."

Ely's case was a typical one of a woman, aged 24. The real facts of her history, which she falsified, were these :—She is the illegitimate child of an actress of whom little is known; very early in life she was adopted or cared for by a loose woman who, according to the patient, introduced her to her own mode of life. She ran away from this woman, and, as far as can be found out, lived a hand-to-mouth life for some months, during which time she is said to have given herself up to prostitution and irregular sexual practices. Later she was confined in some detention home, the character of which is unknown. Her education was almost nil. In 1916 she was taken into a home for fallen girls. While there she alternated between angelic and satanic moods. She gave evidence of auto-erotic and homosexual irregularities. All her stories tended towards the most excessively fanciful fabrications: she claimed great skill in music and art, but in fact knew nothing about them. She showed no physical defects nor stigmata of degeneration, was friendly, easily approached, and co-operated well with the physician. She showed extraordinary linguistic ability, was plausible, and emotionally unstable. On account of

her sexual perversions she had to be removed to another home. Ely sums up the peculiar and dominant features of the case thus:—(1) Bad heredity; (2) bad environment, including bad sex training; (3) very deficient school training; (4) serious sex delinquencies; (5) unusual linguistic ability out of all proportion to training and education; (6) fantastic, imaginative, uncalled-for fabrication without adequate motive; (7) desire to play with children and tell them stories (one of the definite characteristics of the pathological liar); (8) great emotional instability; (9) poor memory for exact repetitions; (10) native ability and planfulness above the average; (11) inability to conduct herself and her affairs with reasonable prudence because of abnormal sexuality, changeability of moods, and excessive lying; (12) total absence of self-control with respect to sex matters; (13) only a false or superficial understanding of her moral responsibility. LEONARD J. KIDD.

SPEECH DEFECTS—PREVENTION. WALTER B. SWIFT, N.E.A.
(196) *Bulletin*, 1917, iv., Sept.

PHONETIC defects are to be prevented by good early phonetic standards, stuttering by hygienic routine during the first two years of school life, and the speech disorder of the mental defective by the early application of a specialised form of drill, applied in the kindergarten and in the lower grades, to be learned only in the Boston Speech Clinics. AUTHOR'S ABSTRACT.

SIDE-TRACKING OF STUTTERERS BY "STARTERS." WALTER
(197) B. SWIFT and JENNIE HENDRICK. *Applied Psychol.*, 1917, i., March.

A "STARTER" consists in any invented motion or action invented by the patient to help his speech action. From analyses these are shown to be movements of head, arms, body, face. To the variety of 41 in 45 cases out of 123 cases examined, they are merely instant helps. They are no cure. They are usually different in different patients. They are usually the same in the same patient. Their momentary efficiency consists merely in a diversion of the attention. Their failure to cure consists in the lack of any profound development of visualization processes or permanent suggestive effect. AUTHOR'S ABSTRACT.

A NOTE ON MENTAL PECULIARITIES AS SYMPTOMS IN
(198) **STUTTERING.** WALTER B. SWIFT and JENNIE HENDRICK, *Journ. of Applied Psychol.*, 1918, ii., March, No. 1.

SUMMARY of findings:—It is concluded that stuttering forces the patient to do or perform numerous peculiar things which are

wanting in normal people. These can properly be classed as symptoms of stuttering; they are surely performances that find their origin in the malady. Then, too, they disappear from the life as soon as the trouble vanishes. AUTHORS' ABSTRACT.

A CONTRIBUTION TO THE PATHOGENIC STUDY OF GRAVES' DISEASE—CONJUGAL EXOPHTHALMIC GOITRE. (199) **(Contribution à l'étude pathogénique de la maladie de Basedow. Le goitre exophthalmique conjugal.)** P. C. FRITZ, *Thèses de Paris*, 1916-17, No. 72.

A RECORD of four cases, one of which is original. In three of them exophthalmic goitre developed simultaneously in husband and wife, and in the fourth the wife developed Graves' disease five years after her husband. Fritz concludes that though the number of cases of conjugal Graves' disease is too small to be conclusive, it is possible that, if the existence of such a condition be confirmed, it may, like conjugal diabetes, throw fresh light on a disease whose pathogeny it still under discussion. J. D. ROLLESTON.

CHRONIC RHEUMATISM FROM THYROID INSUFFICIENCY. (200) **(Rhumatisme chronique par insuffisance thyroidienne.)** L. PAPIN, *Thèses de Paris*, 1916-17, No. 26.

THE existence of a chronic rheumatism due to thyroid insufficiency is supported by the following arguments:—

I. Clinical and therapeutical proofs—(*a*) presence of signs of thyroid insufficiency in chronic rheumatism; (*b*) improvement of chronic rheumatism and thyroid manifestations by thyroid opotherapy or autotherapy (hyperthyroidism of pregnancy); (*c*) demonstrative proofs having all the value of an experiment—(1) a cause giving rise to the appearance of an incomplete myxœdema and then to chronic rheumatism, both conditions giving way to opotherapy; (2) chronic rheumatism cured on the appearance of Graves' disease, returning when the latter subsides, and cured by thyroid opotherapy.

II. Clinical and anatomical proofs, viz., the existence in patients suffering from chronic rheumatism of symptoms of hypothyroidism and lesions of the thyroid affecting the parenchyma, the connective tissue, or the vessels.

III. The pathogeny of chronic rheumatism from thyroid insufficiency is explained by sclerosis of the organ (hypothyroidism) or by atypical evolution of the thyroid cells, resulting in the formation of an abnormal colloid (dysthyroidism), these two manifestations being secondary to the acute infection (rheumatism) or a chronic one (tuberculosis).

IV. Chronic rheumatism due to thyroid insufficiency or dysthyroidism has no special clinical features. It may present almost all the known types of chronic rheumatism.

V. Thyroid opotherapy definitely improves the symptoms of chronic rheumatism due to glandular insufficiency.

The best results are obtained—(1) In subjects under 70 years of age. (2) In lesions which are not deeply situated. (3) In subjects whose general condition is not greatly affected. It acts in the following symptoms: joint pains, periarticular œdema, creaking of the joints, deviation and incomplete ankylosis of the small and medium joints, and functional impotence without apparent change in the joints. Its mode of action is two-fold:

I. It re-establishes the protective function of the thyroid.

II. It modifies the nutrition of the cells of the articular regions. J. D. ROLLESTON.

DRINK AND ITS CONTROL IN RELATION TO WORK AND (201) **HEALTH IN GREAT BRITAIN.** Sir ROBERT ARMSTRONG-JONES, *Amer. Journ. Insan.*, 1918, April, p. 579.

THIS article is a review of the third report of the Central Control Board (Liquor Traffic), which is described as one of the most important public documents issued during the war. The duty of the Board is to control the sale and supply of intoxicating excisable liquor in naval, military, munition, and transport areas, and the functions of the Board consist in maintaining the efficiency of the workers, which they have mainly carried out by extending the system of direct ownership and control of licensed premises, and encouraging industrial canteens among the work-people. The usual method of procedure adopted by the Board in regard to any particular area is to receive a request from the War Departments that the regulations of the Board might apply to it, following upon this an inquiry is conducted by the Board by means of local conferences, and if sufficient reasons are found for action the Minister of Munitions is advised to apply to the Privy Council for an order to "schedule" the district delimited. During the first twelve months of the work the whole of the area under the regulations of the Board contained a population of approximately 33,000,000; since then 5,000,000 more people have been brought under the same regulations, and now only areas comprising a total population of about 3,000,000 remain under the old liquor conditions. The hours during which the sale of drink is permitted have been greatly curtailed; spirits may now be diluted to 35 per cent. under proof, or in the case of gin to 50 per cent. under proof, and in the case of beer to that containing 2 per cent. of alcohol. The Board

has its own inspectors and supervisors in some special areas. The results obtained are stated to have exceeded the most sanguine expectations. In 1914 the total number of convictions in greater London and in the cities and boroughs of Great Britain with a population over 1,000,000 was approximately 156,000, but in 1916 this was reduced to 77,000, the corresponding figures for women being 41,000 and 24,000 respectively. Many other interesting details are given which can not come under the scope of an abstract. D. K. HENDERSON.

(202) **THE DIAGNOSIS OF CASES OF VERTIGO.**

1. **Vertigo as a symptom of primary disease of the labyrinth.** By GEORGE E. SHAMBAUGH, *Journ. Amer. Med. Assoc.*, 1917, Sept. 8.
2. **Aural vertigo occurring in suppurative disease of the middle ear.** By P. D. KERRISSON, *ibid.*
3. **Vertigo due to intracranial disease.** By T. H. WEISENBURG, *ibid.*
4. **Value of Barany tests in the diagnosis of vertigo from whatever cause.** By ISAAC H. JONES, *ibid.*

IN this interesting group of papers the problem of vertigo is approached from various points of view.

The first two writers deal with the question as it presents itself to the aurist.

Shambaugh remarks that great advances have been made since Menière, in 1851, showed that vertigo might be associated with disease of the internal ear. It soon became obvious that cases of Menière's disease were not all due to hæmorrhage into the labyrinth, and the term "Menière's syndrome" appeared more applicable. Under this heading are grouped cases characterised by attacks of vertigo, associated with tinnitus and deafness, cases which differ widely, however, as regards their pathology.

1. Hæmorrhage into the labyrinth is probably of rare occurrence, though it may occur as a complication of blood diseases, such as leukæmia, purpura, and pernicious anæmia.

2. Embolism of the labyrinthine artery may occur in caisson workers, the result of gas emboli, and the writer has seen one case of blood embolism during the puerperium.

3. Syphilis, secondary or tertiary, and hereditary syphilis may invade the labyrinth, but as a rule the progress is so gradual that the disturbance of equilibrium is "compensated," and vertigo does not occur.

4. Neuritis of the eighth nerve may be caused by quinine, alcohol, or tobacco, or by the toxins of infectious fevers. Sometimes the vestibular nerve is alone affected, so that the vertigo is unaccompanied by tinnitus or deafness. The most

frequent cause of vertigo is a chronic degenerative process affecting the peripheral neurons of the cochlear and vestibular nerves, characterised by high-pitched tinnitus and loss of hearing for high tones. Attacks of vertigo occur, and these are regarded as the result of labyrinthine hæmorrhage by some authorities, who would reserve for such cases the term "Menière's disease." The loss of function in the semicircular canals may be demonstrated by the rotation or caloric tests. Many of those cases are the result of some chronic focal infection, such as is often to be found in the faucial tonsil.

Confining his attention to the vertigo which may occur in cases of otitis, *Kerrisson* alludes in passing to those rare occasions when the symptom does not imply involvement of the labyrinth in the suppurative process.

As a rule, the vertigo of middle ear suppuration is the result of an infection spreading to the labyrinth.

During the acute stage, which the aurist seldom sees, there is spontaneous nystagmus towards the side opposite the lesion, subjective sensation of the rotation of surrounding objects in the plane of the nystagmus, and a tendency of the patient to fall, if standing, in the direction opposite to that of the quick eye movement.

In an uncomplicated case of suppurative labyrinthitis those symptoms of vertigo, nystagmus, and ataxia gradually subside, leaving the patient in what is known as the latent stage. In some cases there may still be brief attacks of vertigo, induced by some movement or position to which the patient has not been re-educated, such as going up or down stairs, sudden turning, or standing at a height, or on a narrow support. It is clear that such vertigo constitutes a menace to the patient's life.

During the acute stage there has been a recent infection of a bone cavity, from which the anatomic pathways to the meninges are still open and unguarded, and it is clear that the treatment must consist of absolute rest and quiet, and a postponement of all operative interference.

By the time the latent stage is reached the focus of infection has become walled off by inflammatory exudate, but is still liable to break down the barriers and infect the meninges. It is then that a careful radical mastoid operation, with drainage of the labyrinth, is the only treatment which will safeguard the patient's future.

Vertigo, in any suppurative lesion of the ear, is always a serious symptom, and the questions of whether to operate, and when to operate, will require the aurist's best judgment.

Patients do not die of suppurative labyrinthitis *per se*, but of a

secondary intracranial infection, and before deciding upon operation, the chances of recovery without operation, the possible influence of an operation in causing a spread of infection, the stage at which operation is safest, must all receive due consideration.

Weisenburg treats the subject from the standpoint of the neurologist. He describes a number of cases of cerebral tumour in which vertigo was present. Vertigo, in such cases, points to a great increase of intracranial pressure, or to disease of the posterior cranial fossa.

A patient with a left cerebellopontine angle tumour had no dizziness on standing upright or looking to the right, but whenever he looked to the left he at once felt dizzy.

In a patient, aged 6, from whose right cerebellar hemisphere a cyst was removed, vertigo was entirely absent. There was no increase of intracranial pressure.

Another patient had a glioma of the right cerebellum, and suffered from attacks of vertigo, with nausea and vomiting, symptoms which disappeared after a decompression operation.

From a study of such cases it becomes evident that vertigo of itself is of little value as a localising symptom.

Functional vertigo is of common occurrence. Oppenheim believes that any one can bring on a feeling of giddiness by concentrating his thoughts on a loss of balance, and calling up recollections of the sensation.

In neurasthenic individuals fear or thought of vertigo are quite sufficient to produce it.

Vertigo is very common in traumautic neuroses, and the diagnosis of such cases is often very difficult.

The vertigo of minor epilepsy must not be forgotten. It is frequently confounded with aural vertigo, although the two may co-exist.

Jones advocates a more general resort to the Barany tests in the diagnosis of vertigo. By this means one may ascertain the condition of the vestibular mechanism, and narrow down the diagnosis to three possibilities—functional, ocular, or toxæmic vertigo.

Vertigo may be due to one of the following causes:—

1. A lesion in the ear itself. The importance of labyrinthitis has only been recently recognised, but we now know that a vestibular affection produces vertigo, nausea, and vomiting, just as a cochlear affection produces deafness and tinnitus.

2. A lesion within the brain, affecting the intracranial pathways from the ear. This may be abscess, tumour, gumma, hæmorrhage, &c.

3. Ocular conditions may produce vertigo, which is frequently cured by correcting a refractive error.

4. Cardio-vascular conditions causing anæmia or hyperæmia of the vestibular mechanism, affecting the ear, the pathways, or the centres.

5. Toxæmia, which may be evanescent or permanent. The simplest illustration of the former is the vertigo produced by alcohol, while the latter include such poisons as the toxins of mumps and syphilis.

Several interesting cases of toxæmic vertigo are quoted, due respectively to pyelitis, root abscesses of teeth, and septic tonsils. In all cases a diligent search for any such foci of infection should be made. DOUGLAS GUTHRIE.

PSYCHIATRY.

ON THE CAUSES AND NATURE OF GENERAL PARALYSIS.

(203) **(Étude clinique et critique sur les causes et la nature de la paralysie générale.)** M. CHAUMIER, *Thèses de Lyon*, 1916-17, No. 33.

AMONG 484 patients of both sexes under observation during a period of six years in an asylum in the Lyons district, the inmates of which belonged to the well-to-do classes, there were 88 cases of general paralysis, or 18·18 per cent.; 76 of the cases were men and 12 were women. A certain or probable history of syphilis was found in 70, or 92 per cent., of the men, and in 10, or 83·32 per cent., of the women, whereas in other mental diseases a history of syphilis was found in only 5·9 per cent. of the men, and in 1·3 per cent. of the women. J. D. ROLLESTON.

RESULTS IN TREATMENT OF PARESIS BY INUNCTIONS OF MERCURY AND DRAINAGE OF THE CEREBRO-SPINAL FLUID.

(204) ALAN D. FINLAYSON, *Amer. Journ. Insanity*, 1918, April, p. 603.

A REPORT of cases showing the result of treatment in 14 paretics who had had symptoms from nine months to several years. These patients received daily inunctions of mercurial ointment 50 per cent., and every tenth day a lumbar puncture was made and from 20 c.c. to 40 c.c. of fluid were withdrawn, the amount depending on the pressure and the rapidity of the flow. A Wassermann reaction was done on the blood and spinal fluid. A globulin test, cell count, Lange's colloidal gold test, and a chemical test to determine the presence of mercury in the fluid were also performed.

In 7, or 50 per cent., of the cases the blood Wassermann became negative and remained so for varying periods of time; one case had a negative blood at the time of admission, and it remained so throughout the period of treatment. In 6, or 43 per cent., of the cases the spinal fluid became negative, but in no instance did the blood or spinal fluid become negative and remain so. All cases had negative globulin tests at one or more examinations, but with the exception of one case, more positives than negatives were obtained. The cell count showed an irregular decrease in all instances. In 4, or 28 per cent., of the cases the colloidal gold became negative, but all showed "paretic curves" at some later examination. After fifteen months' treatment a trace of mercury was found in 500 c.c. of grouped spinal fluids. One case showed a good remission mentally, but all the serological findings remained strongly positive. Another case did not improve quite as much but approached a state termed a remission, and has shown some negative serological findings. The remaining 12 cases showed no greater mental or physical changes than would be found in a similar group of untreated cases. D. K. HENDERSON.

THE CEREBRO-SPINAL FLUID IN GENERAL PARALYSIS
(205) **AND THE WASSERMANN REACTION. (Liquide céphalo-rachidien des paralytiques généraux et réaction de Bordet-Wassermann.)** J. A. SICARD and H. ROGER, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, 3 sér., xlii., p. 154.

SINCE 1913 the writers have systematically studied the cerebro-spinal fluid in more than 100 cases of general paralysis, especially in relation to the Wassermann reaction before and after treatment by arsenobenzol injections. The reaction was positive in 100 per cent. They maintain that a patient suspected to have general paralysis, but in whom the Wassermann reaction is constantly negative in the spinal fluid after three examinations, with several days' interval between each puncture, is not suffering from general paralysis. They have found that the reaction in general paralysis cannot be rendered negative in the spinal fluid even after intensive arsenobenzol treatment, whereas in the blood it often becomes negative under the influence of intensive treatment.

They add that lumbar puncture may be practised with impunity in general paralytics, who have therefore no need to rest in the horizontal position a certain number of hours after the puncture, but may resume their ordinary occupations immediately afterwards. This tolerance of the meninges to lumbar puncture is one of the clinical signs of general paralysis.

J. D. ROLLESTON.

DOES THE PARETIC GOLD-SOL CURVE IN PSYCHIATRIC CASES ALWAYS INDICATE SYPHILIS OF THE NERVOUS SYSTEM? PAUL G. WESTON, *Amer. Journ. Insan.*, 1918, Jan., p. 431.

(206)

IN the course of fifteen hundred routine examinations of the spinal fluid it was found that the fluid from three patients, who had no history of syphilis, and negative Wassermann reactions, and negative luetin tests, caused a precipitate of colloidal gold in the paretic zone. No conclusions are drawn, and the question asked by the title is left unanswered.

D. K. HENDERSON.

ON THE CLINICAL ASPECT OF PSYCHOSES OF PUERPERAL ORIGIN. (Contribution clinique à l'étude des psychoses puerpérales.) G. HIRSCH, *Thèses de Paris*, 1916-17, No. 81.

(207)

THE thesis contains the histories of 38 cases, 4 of which are original. 6 died, 15 recovered or showed considerable improvement, and in 17 the symptoms persisted. The cases are arranged in the following three groups:—

1. Those in which the psychoses occurred after more or less severe infection.

Some of these patients had a personal or hereditary history of neuropathy. 5 of the 6 deaths occurred in this group, and were due to the violence of the infection, and not to the mental disease.

2. Cases of auto-intoxication due to arrest of menstruation or lactation, or to thyroid, renal, or hepatic insufficiency. One death occurred in this group.

3. Cases due to anæmia following severe hæmorrhage, mental or physical overwork, or lactation.

J. D. ROLLESTON.

THE SO-CALLED LUCID INTERVAL IN MANIC-DEPRESSIVE PSYCHOSIS: ITS MEDICO-LEGAL VALUE. ALFRED GORDON, *Amer. Journ. Insan.*, 1918, April, p. 667.

(208)

TWO cases are discussed in which the lucid interval lasted for from two to three years, and during that time the patients were considered by many to possess normal mentality. The author, however, believes that all patients during the so-called lucid intervals should be kept under observation owing to the fact that, even in spite of an apparent lucidity, there may be such essential and fundamental deviations in the power of judging that he may gravely compromise himself. In every instance this type of patient should be provided with administrators or with counsel, who should be given full power of a guardian in order to protect them from outside influences, and to prevent them from carrying on all new undertakings without a thorough investigation.

D. K. HENDERSON.

A STUDY OF CASES OF MANIC-DEPRESSIVE PSYCHOSIS
(209) **ARISING AFTER THE AGE OF 40.** R. L. WHITNEY, *Amer. Journ. Insan.*, 1918, April, p. 587.

IN this paper the factors which tend to make the manic-depressive psychoses occurring after the fortieth year more or less chronic in type are discussed. It is shown how metabolic disturbances, how changes in the glands of internal secretion, and how psychogenetic causes may all play a rôle. The presence of arterio-sclerosis is also frequently a complicating factor. The author has made an analysis of 150 cases of manic-depressive psychosis with the first attack at or after the age of 40. He has found that depressions predominate, although there were 22 manic cases. The proportion of men to women, 69 to 81, was more nearly equal, but this difference is partly explained by the fact that the hospital had less accommodation for men than for women. There were 49 complete recoveries. This recovery rate conforms with Kræpelin's estimate for the manic-depressive group as a whole, but is considerably less than that of Dreyfus in his series of cases. Excluding 5 cases of exceptionally long duration, 1 of whom was fourteen years depressed and recovered after a five months' manic phase, the average duration was eight and a half months. The menopause was coincident with onset in 18 cases only, and 7 of these recovered. Evidence of arterio-sclerosis was positive in one-fifth of the cases and was present in 8 of the recoveries. Nearly one-half of the patients at some period of their illness manifested an anxiety state, but feelings of unreality as well as the expression of absurd ideas were very infrequent. The author emphasises the importance of noting the presence or absence of clouding of consciousness, and has found that one-fourth of the total cases and nearly one-half of those that recovered were definitely clouded. It is believed that those cases that show confusion are apt to have a more favourable outcome. It was also noted that those cases which seemed destined to recover began to gain in weight some three or four weeks before mental convalescence set in. D. K. HENDERSON.

REVELATIONS OF THE UNCONSCIOUS IN A TOXIC (ALCO-
(210) **HOLIC) PSYCHOSIS.** C. C. WHOLEY, *Amer. Journ. Insan.*, 1918, Jan., p. 437.

THE case is reported of a man, 52 years old, who showed a fairly typical alcoholic hallucinosis. From the psycho-analytic point of view the psychosis showed itself to be a culminating chapter in a lifelong conflict, in which inherent moral or ethical forces have been struggling for supremacy. The patient had been a

seclusive, shut-in type, with a strong mother fixation, which accounted for the homosexual conflict which filled his life. This helped to explain his addiction to alcohol, beginning at puberty, and reaching the climax of intensity when he deserted his wife, and his indifference to his wife, who was noticeably of a different type from his mother. His extreme confidence in himself, indifference to the opinion of others, and extravagant money display were over-compensations for feelings of a decidedly opposite character. In his psychosis, fear of poverty and of social ostracism were the striking features. The extraordinary feature of the psychosis was that the patient got to know himself, he was able to view his past conduct in a spirit of social fairness, and to realise moral values to an extent altogether foreign to his previous supposedly normal existence. D. K. HENDERSON.

PSYCHIATRIC FAMILY STUDIES. ABRAHAM MYERSON, *Amer. Journ.* (211) *Insan.*, 1918, April, p. 498.

IN a previous paper Myerson studied the heredity in families in which more than two generations were represented. In the present paper the problem of family insanity is attacked from the point of view of brothers and sisters. The principal questions have been whether in two or more insane siblings the psychoses tended to be like or unlike. If like, what diseases are most apt to run through such a fraternity? If unlike, are there any disease groups that are mutually exclusive? To answer these questions a study has been made of 74 families. Cases are reported in detail, but the material has also been tabulated, and it will be sufficient to merely mention the main results. In 45 cases dementia præcox was diagnosed in all members of the fraternity in the hospital; in 7 cases manic-depressive insanity was diagnosed; in 4 cases senile dementia; in 3 cases alcoholic insanity; 11 cases showed varying types of mental disturbance; and 3 were more or less specialised cases. In the dementia præcox group males and females were equally represented. Feeble-mindedness occurred eighteen times in one or both members of the groups presented, so that one may say that in cases where dementia præcox occurs in several members of one generation that feeble-mindedness as a basis for the development of the psychosis or as a coincidence is common. In the manic-depressive group females greatly preponderated, and there was only one case of feeble-mindedness. It is definitely stated that in by far the great majority of cases the psychoses in brothers and sisters tend to be the same

In the second part of this paper the occurrence of both manic-

depressive insanity and dementia præcox in a group of brothers and sisters is discussed. It seems to be established that a parent having manic-depressive insanity may give issue to dementia præcox children, but a parent having dementia præcox only rarely gives issue to manic-depressive children. From an analysis of the material in the Massachusetts State Hospital, and from the cases reported in the literature, Myerson feels that it would be assuming too much to state that these two psychoses do not occur together in the same family group; on the whole, evidence points to the fact that they do occur, but this is exceptional, and Myerson is of opinion that a typical præcox and typical manic do not occur together.

In the third part of the paper the principles of Mendelian inheritance in the psychoses are discussed. A working hypothesis of the psychoses in regard to the transmission of insanity is put forward. D. K. HENDERSON.

(212) **A SOCIOLOGICAL, NEUROLOGICAL, SEROLOGICAL, AND PSYCHIATRICAL STUDY OF A GROUP OF PROSTITUTES.** JAU DON BALL and HAYWARD G. THOMAS, *Amer. Journ. Insan.*, 1918, April, p. 647.

THIS report is based on the result of a study of 320 prostitutes in the city of San Francisco. The investigation covered a period of eighteen months, and all examinations were made in the houses of prostitution during "working hours." The study was undertaken in the hope that it would be of value from the neurological and psychiatrical standpoint, and in the hope that it would aid sociologists in coming to a clearer understanding of a few of the causes of prostitution. The methods of examination are fully detailed. Seventy-four per cent. of the 320 cases had a positive Wassermann reaction with the blood serum; 3 per cent. gave a negative Wassermann reaction; and 23 per cent. admitted having had syphilis or were under active treatment for the disease. Ninety-seven per cent. manifested either pathological or perverted reflexes or sensory disturbances. In regard to the mental examination, the authors did not find any fully developed major psychoses, but they lay stress on the presence of manic-depressive, dementia præcox, and hysterical types. The sociological data includes a consideration of the occupation and position of the parents, the former occupation of the individual, the reasons for leaving home, amusements, the age at the time of the first sexual experience, &c. The only solution of the problem is the early segregation of the socially unfit of both sexes.

D. K. HENDERSON.

THE PRINCIPLES OF DIAGNOSIS IN PSYCHIATRY. E. STANLEY
(213) ABBOT, *Amer. Jour. Insan.*, 1918, Jan., p. 369.

THE symptoms which are present on the surface are often misleading, are often very similar in different psychoses, and in consequence our only scientific justification for making a given diagnosis is our belief that the same fundamental alteration or condition, whatever it may be, known or unknown, lies back of all other cases in which we make the same diagnosis. We should never be satisfied with one cause for any given symptom or symptom group, and even where we find psychogenic origins we should also look for somatic, social, and developmental causes. It is important, too, to distinguish between the cause or causes of the disease, and of the manifestations of the disease; psychoanalytic procedures often give information as to the latter, but alone are inadequate to answer the question, "Why is the patient ill?" It is not enough to know that a general paralytic has had syphilis, but one should also know the other factors which have led to a lowering of the resistance. We should not be afraid to class cases as undiagnosed rather than satisfy ourselves by making a guess or assuming a knowledge that we do not possess.

D. K. HENDERSON.

THE PREVENTION OF INSANITY AND DEGENERACY. CHARLES
(214) W. BURR, *Amer. Journ. Insan.*, 1918, Jan., p. 409.

A GENERAL paper which does not formulate any constructive plan.

D. K. HENDERSON.

THE PROBLEM OF THE INDIVIDUAL PATIENT IN LARGE
(215) **HOSPITALS.** WILLIAM A. WHITE, *Amer. Journ. Insan.*, 1918, Jan., p. 405.

IN large institutions there are always a certain number of patients whom it is difficult to get into touch with. On that account the author has started an intra-mural publication called "The Sun Dial," whose primary function is going to be a therapeutic one. Simple discussions will be given of the various mechanisms making for bad psychological adaptations, and the patients are encouraged to come to the doctors, and lay their troubles before them.

D. K. HENDERSON.

OCCUPATIONAL AND INDUSTRIAL THERAPY. L. VERNON
(216) BRIGGS, *Amer. Journ. Insan.*, 1918, Jan., p. 459.

AN article strongly recommending the thorough, systematic organisation of occupational therapy in every State hospital.

D. K. HENDERSON.

MALINGERING—A PROBLEMATICAL CASE. W. C. SANDY, *Amer.*
(217) *Journ. Insan.*, 1918, Jan., p. 449.

A MAN, 35 years old, the superintendent of an orphanage, was accused of having sexual relations with the young girl inmates. He admitted his guilt, and was sentenced to death. Following this he began to write incoherent letters, then became mute and negativistic, soiled himself, and had to be fed. On account of his mental condition he was sent to a State hospital. In the State hospital he showed mannerisms, and ate in a voracious manner. After a year he suddenly began to talk, became tidy, started to feed himself, and began to take an interest in his surroundings. He is still disinclined to talk about the past, saying that it is painful. In his discussion of the case the writer is inclined to give the patient the benefit of the doubt, and is inclined to consider the case one of "prison psychosis."

D. K. HENDERSON.

EXTRA ASYLUM PSYCHIATRY. L. PIERCE CLARK, *Amer. Journ.*
(218) *Insan.*, 1918, Jan., p. 425.

THE advantages of an asylum training for the consulting neurologist and the general medical practitioner are dwelt upon. The actual bedside teaching of psychiatry would do much to encourage students to take an interest in psychiatry. D. K. HENDERSON.

IMPULSIVE ACTS IN THE PARTICULAR FORM OF SWALLOW-
(219) **ING FOREIGN OBJECTS, AS MET WITH AMONG THE INSANE.** A. W. HOISHOLT, *Amer. Journ. Insan.*, 1918, April, p. 569.

FOUR cases are reported, two of whom are described as cases of "hysterical insanity," and all of whom showed a predilection to swallow teaspoons, safety pins, glass, and various other articles.

D. K. HENDERSON.

THE VALUE OF OUT-PATIENT WORK AMONG THE INSANE.
(220) A. WARREN STEARNS, *Amer. Journ. Insan.*, 1918, April, p. 595.

A BRIEF discussion of the work of the Out-Patient Department in the Boston Psychopathic Hospital. D. K. HENDERSON.

THE RECEIVING UNIT OF THE STATE HOSPITAL AT HOWARD,
(221) **RHODE ISLAND.** ARTHUR H. HARRINGTON, *Amer. Journ. Insan.*, 1918, April, p. 635.

THE importance of having a separate receiving unit in connection with the State hospitals for the care of the mentally affected is

strongly emphasized. The plan of the receiving ward at the Rhode Island State Hospital is described in detail.

D. K. HENDERSON.

ALIENISTS AND PSYCHIATRISTS. E. E. SOUTHARD, *Mental* (222) *Hygiene*, 1917, i., Oct., p. 567.

THE term alienist should be applied to experts in the forensic or medico-legal sub-division of mental hygiene dealing with insanity. The term psychiatrist should be applied to medical experts concerned with mental diseases. Public mental hygiene has two well established sub-divisions, institutional and medico-legal. Social mental hygiene has produced effective social service; individual mental hygiene is founded on practical psychiatry; metric psychiatry, following the work of Binet, is gaining ground; and "mental tests" promise to be of value not only in "mind-lack" and "mind-loss" questions of practical psychiatry, but also in the field of character, handicap work in employment, and vocational choice. D. K. HENDERSON.

FEEBLE-MINDEDNESS AND INDUSTRIAL RELATIONS. C. S. (223) ROSSY, *Mental Hygiene*, 1918, ii., Jan., p. 34.

THE main points emphasized in this article are:—

1. That feeble-minded individuals, with the exception of the lowest type, are trainable.

2. That, by means of psychological tests and scientific methods of selection, undesirable workers can be eliminated from the mass of those seeking employment, and better industrial adjustment can be provided for defective individuals. D. K. HENDERSON.

FEEBLE-MINDEDNESS AND DELINQUENCY. J. E. WALLACE (224) WALLIN, *Mental Hygiene*, 1917, i., Oct., p. 585.

Two groups of cases have been compared, and it has been possible to determine whether the percentage of feeble-minded is greater among the backward pupils who have a record of delinquency than among the backward pupils having no such record. Of the 1363 cases examined, 248 had a delinquent record for such things as truancy, lying, immoral practices, &c.

The proportion of normal and those only a little below normal is slightly higher among the delinquents than among non-delinquents; the percentage of feeble-mindedness among the delinquents is almost 12 per cent. less than among the non-delinquents.

It is the backward rather than the feeble-minded child who is the mischief-maker in school, and potentially is the greater criminal menace. The feeble-minded are simply the dupes of those who are more intelligent. D. K. HENDERSON.

INSANE, FEEBLE-MINDED, EPILEPTICS, AND INEBRIATES (225) **IN INSTITUTIONS IN THE UNITED STATES, JANUARY 1917.** HORATIO M. POLLOCK, *Mental Hygiene*, 1917, i., Oct., p. 548.

ON 1st January 1917 a census was taken of the above groups. This census shows that there are 234,055 insane patients under treatment in institutions in the United States; 225,824 are in public hospitals, and 8231 in private hospitals. In all but eight States the care of the insane is exclusively a State function.

The total number of feeble-minded probably exceeds the insane, but much greater institutional provision for the latter class is found in every state of the Union. In all, there are 37,220 feeble-minded in institutions throughout the country. The epileptics, excepting the insane and feeble-minded, total 10,801; there were 4891 inebriates. Everywhere institutions for the care of all these groups of patients are increasing, the number of patients is becoming larger, treatment is more enlightened, and the insane and feeble-minded in the communities are lessening.

D. K. HENDERSON.

Reviews

THE FREUDIAN WISH AND ITS PLACE IN ETHICS. By EDWIN (226) B. HOLT. J. Fisher Unwin, Ltd., London. 1917.

FREUD'S psycho-analytic method applies in two directions, normal psychology and psychiatry. The latter is the more studied, and indeed the literature on this development is quite extensive, following what some term the new psychiatry. It is the new psychiatry that bears the brunt of the critical lash, but indeed the violence of the defenders of Freud's view is equally great. Freud's method has introduced into psychiatry valuable and novel

advances, although the sexual *motif* suggested is often offensive, and probably in many cases inaccurate. We cannot, however, discuss this important aspect, as the author writes in an interesting manner on the application of Freudism to natural psychology.

In Chapter I. the "Doctrine of the Freudian Wish" is discussed, the exact definition of the wish being that it is "a course of action which some part of the body is *set* to carry out, whether it actually does so or does not" (p. 3). To this may be added that "we shall do well if we consider this wish to be, as in fact it is, dependent on a *motor attitude* of the physical body, which goes over into overt action when the wish is carried into execution" (p. 4). If not carried into action, it is then said to be suppressed or is in conflict with another wish, which may thus bring about evil dreams, lapses of memory, or suppression. Rational wishes keep morbid ones in abeyance in waking hours, constitute the normal character or upper wishes or censor, and this acts in regulating the usually suppressed wishes. Dreams, wit, and humour are discussed on Freud's views in an interesting manner. Practically Holt regards the "wish" as the "unit of psychology," and hopes that it may replace the term "sensation," and improve our conceptions of psychology as much as the physicists "atom" (or rather "electron") and ion have reshaped physics and chemistry. In fact the author looks on his views as tending to help on psychology on the lines of exact physical and chemical research. Truly a laudable hope.

Chapters II., III., and IV. discuss the physiology of wishes and their interpretation, and also the wish in ethics, and some broader aspects of the Freudian ethics. He believes the Freudian ethics to be a literal and concrete justification of the Socratic teaching (p. 141).

The supplement is somewhat transcendental ("Responses and Cognition," p. 153), but is suggestive. Of course it would be a great advance if we could investigate behaviour in an individual, normal or abnormal, by the same methods of reasoning employed by the chemist in discussing electrolytic action in a fluid, but there is such a vast gap between a fluid and cerebral substance. Emerson's advice to "hitch our waggon to a star" is admirable in theory but unattainable in practice.

The whole book is suggestive and interesting, and perhaps we may write the wish as a chemical equation in terms of ions.

AN INTRODUCTION TO THE PHYSIOLOGY AND PSYCHOLOGY
(227) **OF SEX.** S. HERBERT, M.D. Pp. xii.+136, with 49 figs. A. & C. Black, London. 1917. Pr. 3s. 6d. net.

THE problems connected with sex have recently been becoming more and more prominent, and an attempt is here made to give the elementary facts of the physiology and psychology of sex in a simple and popular manner. The book is essentially for beginners, who will find in it most of the information they may require.

ARCHIVES OF NEUROLOGY AND PSYCHIATRY FROM THE
(228) **PATHOLOGICAL LABORATORY OF THE LONDON COUNTY MENTAL HOSPITALS, MAUDSLEY HOSPITAL, DENMARK HILL.** Edited by F. W. MOTT, M.D., LL.D., &c. Vol. vii., 1918. P. S. King & Son, Ltd., London. Pr. 10s. 6d. net.

SINCE the publication of the last volume of the Archives, the pathological laboratory of the London County Mental Hospitals has been removed from Claybury to the Maudsley Hospital, Denmark Hill, S.E. When this hospital was completed it was taken over by the War Office for the 4th London General Hospital, of which it forms the principal part of the neurological section.

The present volume contains twelve papers, many by Dr Mott himself, dealing with shell-shock and other war conditions. Dr Sans's morphological investigations upon the convolutional pattern of relative brains in man, and Dr Kojima's researches on the ductless glands in 110 cases of insanity, with special reference to hypothyroidism and to dementia præcox, are included.

The collection of all these articles together is of considerable value, and Dr Mott is to be congratulated on the latest addition to the Archives.

THE INTENSIVE TREATMENT OF SYPHILIS AND LOCOMOTOR
(229) **ATAXIA BY AACHEN METHODS.** REGINALD HAYES, M.R.C.S. Pp. vi.+88, with four plates. Second edition, revised. Baillière, Tindall & Cox, London. 1917. Pr. 3s. 6d. net.

THE first edition of this book has already been reviewed (*v. Review*, 1914, xii., p. 533). The present edition varies little from the first, except that the treatment is still more intensive, salvarsan injections being advised at shorter intervals, and four illustrations are inserted to show approximately the position assumed by the patient and the rubber during treatment.

THE ORGANS OF INTERNAL SECRETION—THEIR DISEASES
(230) **AND THERAPEUTIC APPLICATION. A Book for General Practitioners.** Ivo. Geikie Cobb, M.D., M.R.C.S. Pp. x.+228. Baillière, Tindall & Cox, London. 1917. Pr. 5s. net.

This book is founded upon articles which appeared in the *Medical Press and Circular* during 1916. It is admitted by all that the subject of the internal secreting glands is one of the most important in scientific as well as in practical medicine, but our knowledge of these small but vital organs is only in its infancy, and with a very few exceptions their therapeutic application is still more obscure. Much of our present knowledge is summarised here, but the vague generalisations with regard to treatment are of little value, and are not based on any accurate observation. The list of references to published papers at the end of each chapter is, however, useful.

THERAPEUTIC IMMUNISATION, THEORY AND PRACTICE.
(231) W. M. Crofton, M.D. Pp. 224. J. & A. Churchill, London. 1918. Pr. 7s. 6d. net.

This book contains the substance of the lectures delivered by the author for the last seven years at University College, London. It gives an excellent introduction to the complex subject of immunisation, without entering at too great length into the different theories of immunity. Thirteen pages are devoted to the nervous system.

THE FUNDUS OCULI OF BIRDS, ESPECIALLY AS VIEWED BY
(232) **THE OPHTHALMOSCOPE. A study in comparative anatomy and physiology.** Casey Albert Wood. Illustrated by 145 drawings in the text; also by sixty-one coloured paintings prepared for this work by Arthur W. Head, F.Z.S., London. Pp. 181. Chicago, The Lakeside Press. 1917.

Although the ophthalmoscopic and naked-eye appearances of the fundus oculi have been thoroughly described and depicted by other writers in many of the mammals, especially in man, very little attention has been paid to the remarkable and interesting eye-grounds of the animal that exhibits the highest and most varied types of vision, namely, the bird. The eyes of some representative of practically all the orders of birds, and most of their backgrounds, have been examined by the writer, and are more or less fully described and illustrated in this atlas. Some of the more important species were examined not only ophthalmoscopically before death, but macroscopically afterwards, and extensive microscopic examination of the tissues was also carried out.

Domestication or prolonged captivity brings about abnormal changes in the eye-ground of birds, so that only healthy, wild specimens have been utilised in this research, which was begun more than ten years ago. The collection of the necessary material from different parts of the world had also involved considerable labour, quite apart from the investigation itself.

The parts and organs visible by the ophthalmoscope in the eye of the bird are in particular—(*a*) the concavity or general chorio-retinal surface of the posterior half of the eye; (*b*) the pecten; (*c*) the optic nerve entrance; (*d*) the areas of acute vision; (*e*) the fundal blood vessels; and (*f*) opaque nerve fibres. The appearances of these organs and tissues furnish entirely different coloured pictures in different birds, and it is frequently possible to recognise a species by viewing its fundus. The origin of birds, or at least their relation to that Sauropsidian ancestry which they hold in common with Reptilia, is also made more clear from ophthalmoscopic examination, and the coloured pictures seen in the fundi of healthy wild birds is of great value for classification purposes.

The author of this extensive monograph is to be sincerely congratulated on accomplishing so successfully such an excellent and beautiful piece of work. The coloured plates depicting the various fundi have been executed with exceptional skill both in the original representation by Mr A. W. Head, and by the printers, the slight variations in shades of colour and in minute detail being most carefully reproduced. The atlas should prove to be a classic in this department of research.

X-RAYS. G. W. C. Kaye, M.A., D.Sc. Third edition. Pp. xxii.+285, (233) with 115 figs. Longmans, Green & Co., London and New York. 1918. Pr. 9s. 6d. net.

An X-ray outfit is now indispensable to discover the exact localization of metallic fragments, whether in the nervous tissues or elsewhere, and the debt which humanity owes the X-rays, to take the present war alone, is a heavy and increasing one. The vacuum tube has shed light also upon the whole domain of electrical science, and even upon the constitution of matter itself.

An excellent account of the whole problem is to be found in this book, which has now reached its third edition. It describes the physical phenomena at considerable length, and discusses the numerous theories and experiments which have led to our present knowledge. X-ray "burns" are mainly due to the absorption by the skin of the very soft rays, which are very easily arrested by screening. "Happily the nervous system generally is not at all sensitive to the rays."

MAN'S UNCONSCIOUS CONFLICT. A popular exposition of psycho-
(234) **analysis.** WILFRID LAY, Ph.D. Pp. vi. + 318. Kegan, Paul, Trench, Trubner & Co., Ltd., London. 1918. Pr. 7s. 6d. net.

THERE is a widespread failure to understand the nature of Freud's psychology, especially in the medical literature of this country. The importance of this psychology extends far beyond the sphere of medicine. Conflict, dissociation, and sexuality are wrongly regarded as the main features of Freud's work, for its chief claim to originality rests upon its theory of forgetting, and it has to be noted that cases from the war do not often directly illustrate his views.

A brief and more or less popular account of the whole question is given here as related to everyday living, to therapy, and to education. The Œdipus myth is explained. A complex is defined as "a group of unconscious ideas, or rather a group of ideas in the unconscious, which, having been subjected to repression, continues to have an independent existence and growth." The book can certainly be recommended as a useful introduction to the subject.

Review

of

Neurology and Psychiatry

Original Articles

PRELIMINARY NOTE ON A PHENOMENON OF "HETERÆSTHESIA" GIVING APPARENT DISSOCIATION OF SENSORY FUNCTION IN SEGMENTAL AREAS OF THE SKIN.

By T. GRAHAM BROWN and R. M. STEWART.

(From the Neurological Department, British Salonika Force.)

We believe that this phenomenon of what we may term heteræsthesia[1] has not hitherto been described.

By the term heteræsthesia we may denote difference in the degree of sensation experienced by the subject when stimuli of equal value are applied to different parts of the skin or other sensory receptive field. It is obvious that the phenomenon included under this term will therefore embrace changes associated with organic lesion of the peripheral afferent nerves, and of the ascending tracts in the spinal cord. With these more obvious forms of the phenomenon we do not deal in this note. The phenomenon to which we wish to draw attention seems to be a more subtle one, not conditioned by gross organic lesion in all cases.

In a certain number of cases of concussion, when a stimulus of a constant strength (the scratch of a pin, the faradic current)

[1] We are indebted to Col. Purves Stewart, C.B., A.M.S., for suggesting this word to us.

FIG. 1.

Pte. S.—Shell concussion. Lines of heteræsthesia on face, neck, and upper part of chest.

This and all other figures are obtained by tracing from the original photographs.

FIG. 2.

Pte. S.—Shell concussion. Lines of heteræsthesia on head, face, neck, and shoulder.

FIG. 3.

Pte. S.—Shell concussion. To show the lines running across and behind the left external ear.

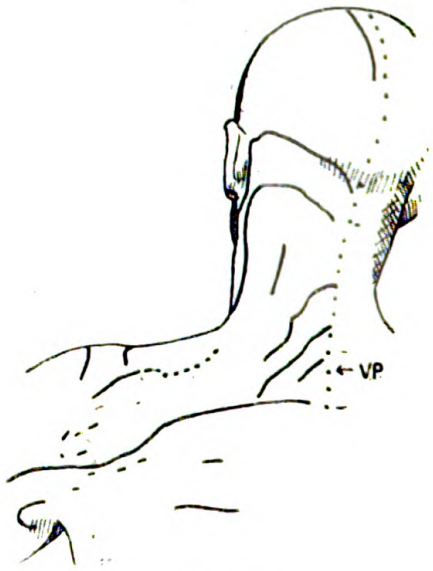

FIG. 4.

Pte. S.—Shell concussion. Lines of heteræsthesia on posterior aspect of head, neck, and shoulder. The dotted line is the mid-line of the body on head and neck. The vertebra prominens is indicated by "V.P." The broken line is an uncertain one.

is drawn across the skin, the subject states that an apparent change in sensation occurs at certain lines of demarcation which are found to be comparatively stable. Up to the present we

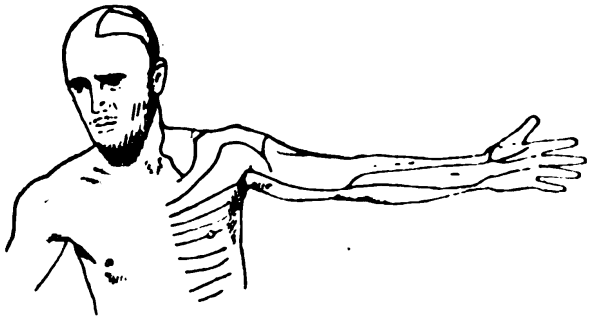

FIG. 5.

Pte. S.—Shell concussion. The lines on anterior aspect of neck, upper limb, thorax, and upper part of abdomen. Those on face are not mapped. The line running across the head in the sagittal region is a little to the left of the mid-line and parallel with it.

have observed this phenomenon in two cases of compression of the cervical spinal cord after fracture dislocation of the spine,

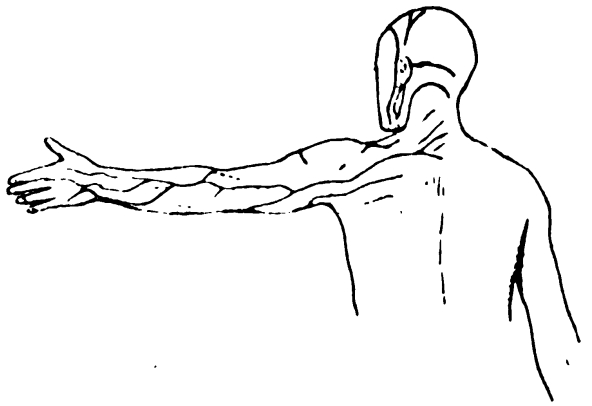

FIG. 6.

Pte. S.—Shell concussion. The lines on posterior aspect of left upper limb, shoulder, and neck. The broken lines were relatively vague.

in one case of fracture of the base of the skull with severe concussion; and in six cases of concussion from shell burst ("shell shock"). In some of these cases the phenomenon has been ill defined; in at least four cases it has been well defined. In the

cases of shell concussion it has been transient, and found rarely later than seven days after the concussion.

The phenomenon itself consists in an apparent change in sensation when the moving stimulus crosses certain lines (or, rather, in the reaction of the subject when the stimulus crosses these lines). The change is described by the subject in the concussion cases as one of variation of apparent strength of stimulus —the faradism, for instance, feels stronger (or weaker) as the

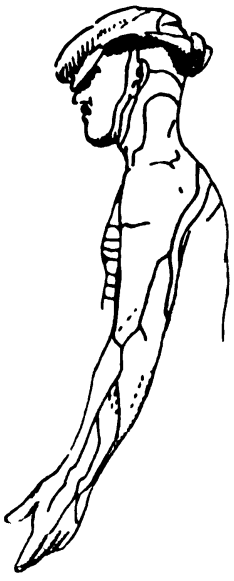

FIG. 7.

Pte. S.—Shell concussion. The lines on postero-external aspect of left upper limb. The broken lines were relatively vague.

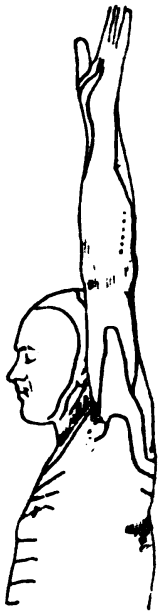

FIG. 8.

Pte. S.—Shell concussion. The lines on internal aspect of left upper limb, and an anterior aspect of thorax.

line is crossed. In the compression cases, the phenomenon has been found on the same side of the body as that upon which skin sensation was blunted below the level of the lesion, and has consisted in a change (as described by the subject) of the apparent location of the stimulus. As the line is crossed, "the sensation seems to shoot all through the body," or "seems to jump over to the other side" (allocheiria).

The line at which change occurs seems to be comparatively constant, but the change itself is not always constant in direction.

Thus at one time, when the stimulus is drawn across the line, the change may be one of apparent increase in value; while at another time, when the stimulus is drawn in the same direction, the change may be one of apparent decrease in value. Although

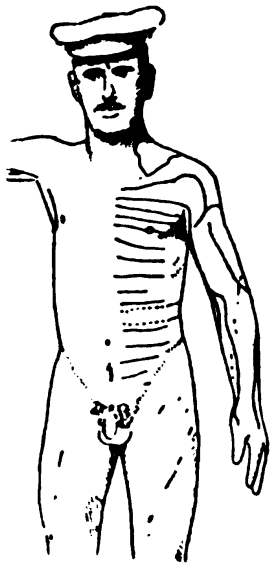

FIG. 9.

Pte. S.—Shell concussion. To show the lines on anterior aspect of thorax and abdomen, and the fragments of lines on anterior aspects of thighs. The two dotted lines just above umbilicus show the boundaries of a belt of constant hyperæsthesia which was present for two or three days after the concussion, and actually extended completely round the abdomen, and not only in the region here marked.

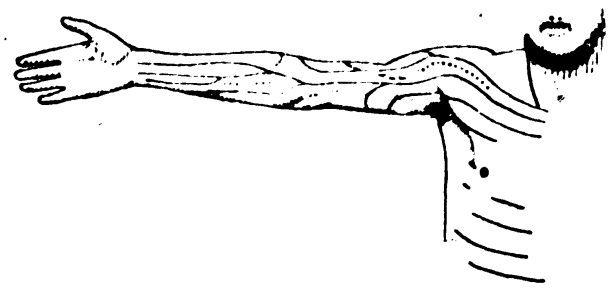

FIG. 10.

2nd Lieut. W.—Shell concussion. Lines of heteræsthesia on anterior aspect of thorax, neck, and right upper limb. In this and the following figures the dotted lines represent tracks in which *no* heteræsthesia was encountered when the stimulus was drawn along them. Broken lines indicate inconstant reaction.

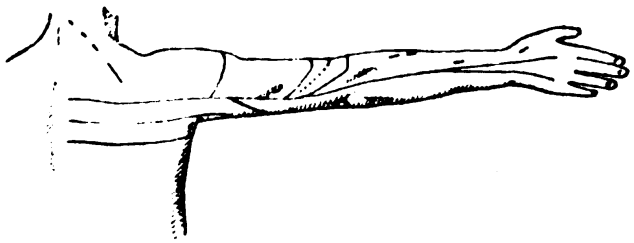

FIG. 11.

2nd Lieut. W.—Shell concussion. The lines on posterior aspect of right neck, shoulder, and upper limb.

the lines may be comparatively constant in site they may yet not always be obtained. Thus when a stimulus is drawn across a certain area of the skin apparent change may occur at a certain line of demarcation in that area. This change may not always occur when the stimulus is drawn across the line, but if a change

does occur in that area it occurs at the line. The lines of demarcation or "lines of change" are of course composed of aggregated points of change. We have mapped lines by taking points one or two centimetres apart, and it has usually happened that when a marked change has occurred at a certain point, the neighbouring points in the same line are more easy to obtain.

The lines thus marked have a striking resemblance to the supposed boundaries of the areas of peripheral distribution of the afferent posterior root fibres of the spinal cord, and we have succeeded in mapping these lines in the upper and lower limbs and trunk in one case, and in the head and neck, upper limbs and trunk in another case—thus in two cases of shell concussion obtaining a complete map of the whole body (see Figs. 1-17). In describing this phenomenon we are fully aware of the grave dangers to accuracy of observation entailed by the possibility of "suggestion." There are two points in connection with the phenomenon which we describe. The first of these is the actual occurrence of this form of heteræsthesia; the second is that of the topography of the lines of change.

We think there can be no question of the occurrence of the phenomenon, and we believe that it occurs independently of "suggestion," although in some subjects suggestion undoubtedly may play a part. (For this reason we have not included in the list of cases one of fracture by rifle bullet of the transverse process of the fourth cervical vertebra; in those which we describe we think that "suggestion" did not play a part.) We tried in one case in which the lines were extremely well defined upon the limbs and trunk, but unobtainable upon the face, to obtain them by suggestion. They were not obtained. The constancy in situation of the lines of change is also not what would be expected if the phenomenon were due to suggestion. Thus, in favourable cases the variation of the site of a line may be less than three millimetres even when the observations are spread over several days (the patient's eyes, of course, are closed throughout the observations). Similar constancy is also obtainable when such different stimuli as the scratch of a pin and the weak faradic current are used. Another point against "suggestion" is the fact that in the case of partial unilateral compression of the cervical spinal cord the phenomenon could only be obtained upon one side

FIG. 12.

2nd Lieut. W.—Shell concussion. The lines on postero-internal aspect of right upper limb.

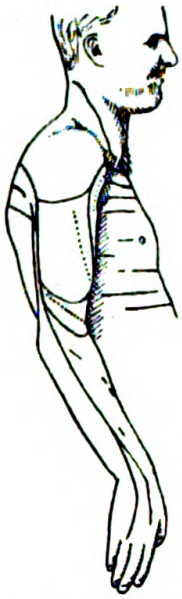

FIG. 13.

2nd Lieut. W.—Shell concussion. The lines on postero-external aspect of right upper limb.

FIG. 14.

2nd Lieut. W.—Shell concussion. The lines on anterior aspect of right lower limb.

FIG. 15.

2nd Lieut. W.—Shell concussion. The lines on posterior aspect of right lower limb.

FIG. 16.

2nd Lieut. W.—Shell concussion. The lines on external aspect of right lower limb.

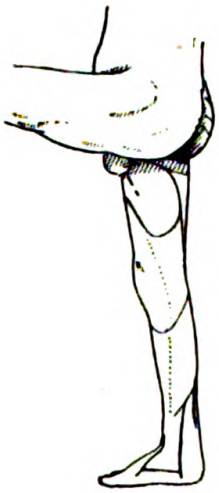

FIG. 17.

2nd Lieut. W.—Shell concussion. The lines on internal aspect of right lower limb.

of the body below the level of the lesion. It was absolutely unobtainable on the other side.

The second point is the question of the topography of the lines. These have a very vivid resemblance to the boundaries of root or segmental areas. Here again there is, however, a grave danger that the observer may suggest these to the subject. He may draw the stimulus rapidly over an indifferent area, and more slowly over one where he expects to find a line. In mapping a line he may, more or less subconsciously, start the stimulus always at the same distance from the line which he expects to find. He may press more strongly when he comes to the line. With these possibilities in view we have checked our observations with satisfactory results. It is undoubtedly possible in susceptible cases to suggest lines running in any direction. In the cases in which these present observations were obtained this was not so. After the lines had been mapped, stimuli were drawn with changing speeds in the areas between the lines without encountering lines of change; but when the direction of the stimulus was slightly changed so that it crossed a line the subject at once reacted. In the rare cases where lines of change were encountered in such indifferent areas these lines had no constancy. The lines which were mapped had. Another point against "suggestion" is that we sometimes failed, and failed repeatedly, to find a line which we expected to find, and that we occasionally found a line which we did not expect to find. This last was especially so in the case of a line which we found in several cases running parallel to, and about six centimetres above, the line between the second and third lumbar root areas on the front of the thigh (Figs. 9, 14, 20). Finally, in one case where heteræsthesia was extremely well marked, we definitely tried to suggest a false line, but did not obtain even a trace of it.

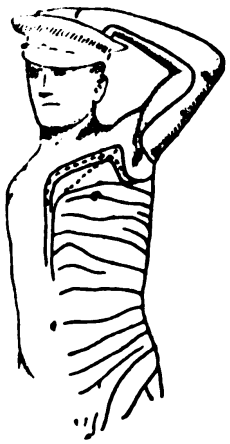

FIG. 18.

Pte. M'C.—Partial spinal compression in cervical region (4th-5th vertebræ, "Brown Séquard" symptoms). Lines of heteræsthesia ("allocheiria") on anterior aspect of thorax and abdomen. The upper lines on thorax (two continuous lines, two broken lines), and the vertical lines are the boundaries of the area of general change to different forms of sensation on the left side of body associated with the spinal compression. Those on the left upper limb are the boundaries of areas of sensory blunting, probably due to injury of posterior spinal roots.

A curious fact in the topography of these lines is the comparative absence of the phenomenon of "overlapping." The work of Sherrington and other observers has shown that, especially in the trunk, a root area overlaps those above and below it—so that any one point in the skin is supplied by nerves from at least two spinal roots. If our lines had been those delimiting root areas

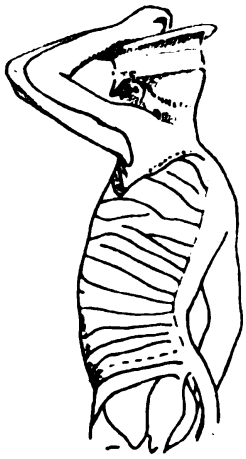

FIG. 19.

Pte. M'C. — Partial spinal compression. Lines of heteræsthesia ("allocheiria") on postero-external aspect of thorax, abdomen, and buttock. The broken line near the iliac crest was not properly marked in the photograph and has been added here. It was a distinct, and not a vague line.

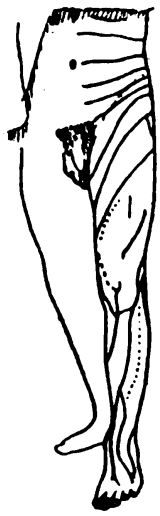

FIG. 20.

Pte. M'C. — Partial spinal compression. Lines of heteræsthesia ("allocheiria") on anterior aspect of left lower limb. The broken lines are vague ones. The dotted lines are those along which the stimulus was drawn repeatedly without encountering heteræsthesia.

we would have expected to find about double the number which we actually did find. There was some evidence of these overlapping lines. But this was slight, and we may hazard the suggestion that perhaps overlapping may not occur to the same extent in *segmental* areas, and that our lines of change were those of segmental and not of root areas. A point in strong favour of the segmental (as distinct from root) origin of the lines is their

occurrence in the segmental areas *within* the general root area of the Vth cranial nerve—which has but a single entering root, but the fibres of which are directly distributed to several segments.

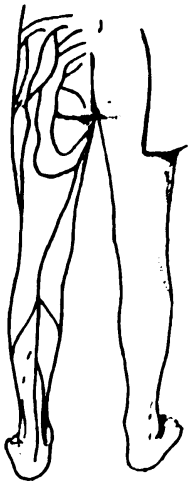

FIG. 21.

Pte. M'C.—Partial spinal compression. Lines of heteræsthesia ("allocheiria") on posterior aspect of left lower limb and on left buttock.

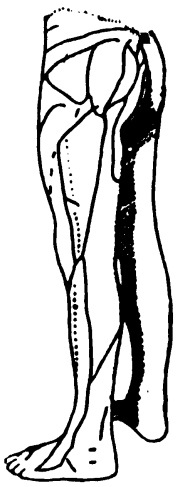

FIG. 22.

Pte. M'C.—Partial spinal compression. Lines of heteræsthesia ("allocheiria") on external aspect of left lower limb.

FIG. 23.

Pte. M'C.—Partial spinal compression. Lines of heteræsthesia ("allocheiria") on internal aspect of left lower limb.

FIG. 24.

Pte. M'C.—Partial spinal compression. Lines of heteræsthesia ("allocheiria") on sole of left foot. [The second toe is not seen, as it lies above Hallux.]

This occurred in one case very distinctly, and less distinctly in another case—both cases of shell concussion.

In any case these observations would seem to be capable of adding to our knowledge of the topography of segmental (or root ?)

areas in that it seems possible to map nearly all the lines of delimitation in one and the same individual—whereas up to now the fields have been compiled by adding together the findings of a large number of different individual cases of organic lesion.

If it be conceded that our areas are segmental, they give information in connection with a subject of which at present very little is known.

Finally, we would say a word with regard to the conditioning of the phenomenon itself.

The heteræsthesia points to a condition of change of excitability between adjacent segments of the spinal cord. Such a state of raised "reflex excitability" may be induced in the animal under experimental conditions. What is strange is not its occurrence, but its absence in the normal state. It must be obvious that indiscriminate variation in excitability of the afferent mechanisms in different neural segments cannot be to the advantage of the animal, and it may be assumed that in the normal individual there exists a mechanism for the levelling of states of excitability. Such a mechanism would probably have its centre in the higher parts of the nervous system, and would work through special descending tracts. In this connection the occurrence of heteræsthesia on one side of the body below the level of a partial unilateral compression of the spinal cord is significant. Such a mechanism would be an integrating one, and we may suggest that it is possible that the transient heteræsthesia in the cases of concussion is due to such a mechanism being thrown out of gear for the time being.

Our results, here briefly summarised, certainly seem to point to an organic basis for the condition of shell concussion which is commonly called "shell shock." In very strong support of this we may mention the fact that we have found marked pathological changes in the cerebro-spinal fluid of these cases, and that these pathological changes disappear shortly before the disappearance of the heteræsthesia.

The twenty-four figures which illustrate this paper are obtained by tracing from untouched photographs—the lines, as they appear, being marked as such on the subject and not marked in on the photograph after it was taken. They are from three

cases—two cases of shell concussion and one of partial compression of the cervical spinal cord—and together give a fairly complete map of the body.

A continuous line denotes one at which changes of heteræsthesia appeared fairly constantly when a stimulus was drawn *across* it. A broken line is one at which the changes were less constant. A dotted line denotes one *along* which the stimulus was drawn repeatedly *without* encountering change. These different markings were permanently marked on the subject, but were intensified just before the photograph was taken.

We desire to thank Lieut.-Col. J. C. N. Rutherford, D.S.O., R.A.M.C. (officer commanding the General Hospital in which this department is located), for permission to publish this paper.

A CASE OF PSEUDOLOGIA PHANTASTICA.

By C. STANFORD READ, M.D., Major, R.A.M.C.,
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For more than one reason these cases have had a special interest for some time. Most of them are greatly misunderstood by those with whom they come in contact, and even the physician may not recognise that they are pathological, while the law, with which they may come into conflict, looks upon them with no kindly eye. Excellent studies have been made of this abnormality by eminent observers. Delbrueck, who first coined the term "pseudologia phantastica," showed the existence of the combination of delusions or false memories with pathological lying, and pointed out the dangers to society that arose therefrom. Healy, who studied the question mostly in relation to juvenile delinquents, in his work on "Pathological Lying, Accusations, and Swindling," discusses its pathology, and gives a review of the previous work done on the subject, to which the reader may be referred. He defines pathological lying as a "falsification entirely disproportionate to any discernible end in view, engaged in by a person

who, at the time of observation, cannot definitely be declared insane, feeble-minded, or epileptic. Such lying rarely, if ever, centres about a single event; although exhibited in very occasional cases for a short time, it manifests itself most frequently by far over a period of years, or even a lifetime. It represents a trait rather than an episode."

This case is published because it has certain special points of interest. The man was admitted to "D" Block, Netley, from France, where his statements and self-accusations had created much anxiety and uneasiness, since it was difficult for some time to be sure of the truth of his assertions. The Consulting Neurologist who examined him did not hazard a definite opinion on the man's mental state, but suggested the possibility of the case being one of dementia præcox. The history of the case is as follows:—

J. W., æt. 21 years. He belongs to a family of six, two boys and one girl being older. Beyond the fact that a sister of his mother died in an asylum, nothing can be elicited to show any psychopathic traits in his family. In very early life he remembers he was afraid of the dark and being by himself, but there is no history of any fits, night terrors, or somnambulism. He has had little physical illness, and none of any importance. His relations at home were happy, except with his father, whom he always feared, as he was so strict and often beat him, as he thought, unjustly. Even now he does not like him, but he is very attached to his mother, as he has always been. There has always been much reserve, and he has only made a few friends. At school he did well. He was always fond of studying at leisure, especially mythology, and was early interested in the works of Shakespeare, Milton, Thackeray, Dickens, and H. G. Wells. From the earliest times he says he had a very vivid imagination and wanted to be an author. He tried to conjure up stories he would write, imagine what humanity was like, what theories he would use, &c. He often slept little, and pondered on these themes well into the night. He would often have such vivid images of well-known intellectual people congratulating him and shaking hands with him on his great work, that at times it was difficult for him to realise it was not all reality. He left school at the age of twelve, and had private tutorship at home, while at the same time he helped his father, who was a chemical analyser of sugar,

and spent some time also in a sugar refinery. He was only happy with his tutor, for his relations with his father were strained, since the patient's desires lay in the development of his mind, while his father wished him preferably to develop his physique. He was somewhat precocious sexually, and experienced hetero-sexual acts from an early age. At the age of 14 he ran away from home because he could not agree with his father. He took up the position of bell-boy in a large hotel in Montreal, as he thought this would give him such a good opportunity to study humanity, as the place was so cosmopolitan. He says: "I wanted to find out the predominating factor in human beings, and I found out it was 'self.' Then I thought I would be able to write about such things phantastically, and so do good and earn fame." He was only at the hotel for six weeks, for his father took him home again, but a few months later he quarrelled with his father, when he once more became a bell-boy at hotels in Montreal and Toronto. While in this position he had many conversations with people who got interested in him, and to whom he aired his views on suffragism and religion. About this time he published two stories in a magazine, which were partly founded on fact, and of these he was extremely proud. After two months he was again taken home, where he studied languages, mythology, and psychology with his tutor. His definite lying started now, for he told his tutor that he was then in the British Secret Service, and he made up some badge which he wore round his neck at times to demonstrate the truth of his assertion. In August 1915 he went to a university to study, with the intention of taking a degree in Arts, but in November he ran away and joined the army, partly from patriotic motives and partly because he thought the experience in the service would be a fine education for him. His imagination all the time had been running on the same lines as before, but superadded to this was the love of mystery which seemed to have a great glamour about it. Many foreigners he had seen at the hotels had seemed mysterious to him, and he tried to make people think that there was something mysterious about him, and he endeavoured to create suspicion. This desire was also heightened by the reading of mystery and secret service novels. He felt he was very conceited, and he wanted others to stand in awe of him and regard him as different from others. To those who were

interested in him at the hotels he used often to lie a great deal to make himself appear a man of the world. He would say he had travelled much, that he was older than he really was, and had published some books, and the congratulations he received gave him great delight. Though he usually realised he was lying, he at times began to believe such things were true. He liked the army when he joined it, and took great interest in his work. He came to England in July 1916 from Canada, and was there for twelve months prior to going to France in July 1917. He was well and happy all this time, except for some temporary depression over some love affair which lasted for eight months, until he quarrelled with the girl. With her he tried to be mysterious, and made out he was in the Secret Service, and had therefore special privileges, but could not tell her anything about such confidential matters. He went to France in July 1917, and went into action two weeks later. He was soon under very heavy bombardment, but his war experience then and later did not upset him in any way. To his comrades he was as mysterious as possible, and he told them that some people he knew in Boulogne and Versailles were specially influential, and he got these people to write him in French and German so as to add to the mystery. His main idea was all the time to impress his comrades with the fact that there was something out of the ordinary about him. He was chaffed about being a spy, and this the patient much enjoyed. Nothing beyond this specially occurred. In January 1918 he was blown up by a shell, and rendered unconscious for two hours, and when he came to himself he had a very severe headache. The following morning he was sent to the waggon lines, where he was for six weeks complaining of insomnia, headache, slight depression, shakiness, irritability, and jumpiness at loud sounds. Towards morning in bed he had hallucinations which were seemingly hypnagogic—hearing his comrades saying he was a spy, and was to be denounced when more evidence was forthcoming. He asked about this, but as his comrades behaved normally to him he thought it was all due to imagination. But as these hallucinations continued he could hardly believe they were imaginative, and he determined to give himself up as a spy, though he knew very well that this self-accusation was not true, but he says that nevertheless he could not help doing this. At the same time he had impulses to steal

which he could not prevent being carried out. He can give no explanation of this, but says he had to do something to get the spy business out of his head. He was sent to a rest station, and two days later he told the medical officer that he wanted to confess he was a spy, and when asked for evidence he showed some cards written in French from some girl acquaintance at St Etienne, where, as it happened, some German agent had recently been caught. He stated that he had been working for the enemy Intelligence Department since the age of 10, and since had been continuously in touch with enemy agents while in rest billets near the front. He felt he was enjoying making these statements, which he fully knew to be lies, though he tried, he says, to prevent himself saying these things, but the impulse was too strong for him. He was so pleased to think that all this would make him notorious, and perhaps get his name thereby in the papers. His temper at this time was very irritable, and he thinks that this was at any rate partly due to the conflict he passed through between his wish to lie and desire to tell the truth. He was taken before the A.P.M., when he made the same lying statements about himself. Being sent to the Army Intelligence Headquarters he repeated his story, but gradually enlarging and improving on it, giving minute details of his supposed connection with German agents, and how he had enlisted for the purpose of spying, and had been instructed exactly how to carry on. After being a short time in detention he determined to tell the truth, and was again brought before the intelligence authorities, when he explained how he had lied. It seems, however, that his first story was only believed, and he was returned to detention, where he was specially watched for confirmatory evidence. Measures were taken to get him to talk freely, and this so pandered to his desire for mystery and notoriety that he determined to keep up his lying, which he accordingly elaborated. He refused to split on his supposed accomplices, and said he would rather be shot. He says that he would have stuck to his story had they taken him out for execution, and he pictured himself in grandiose situations, such as having his eyes bandaged when about to be shot, his tearing the bandages off in a dramatic way, giving some heroic speech at the last moment, referring to the fact that this was how a spy could die for his country. He was kept in detention for two weeks longer, during which time he was continually

interviewed and cross-questioned by intelligence officers. Some of these latter had now suspicions as to the real state of affairs, and intimated to him that they knew he was lying, and that he would be sent to hospital as a case of "shell shock." This did not suit the patient at all, as it put an end to his heroic situation. It seems, however, that on further investigation doubts about him again arose, and detention was persevered in, as the patient gave them what seemed more convincing evidence. Shortly afterwards he was further medically examined, and then sent to hospital. He there repeated his imaginative story, but soon felt a desire to tell the truth, which he did to the chaplain, and later to the medical officer, except that he made a false statement about a loss of memory of having given himself up as a spy. He was still regarded as a spy by some, while others thought him a malingerer. As so many doubts were still expressed about him, he says he began to get sick of the whole business, especially when he found himself an object of contempt, and so he decided to state that he had been malingering to get out of the battery. This, though, was not believed, but he was sent down to a base hospital, and for the first time looked upon as a mental patient. Here he felt perfectly well all the time, but on two occasions he had slight relapses. In both he had impulses to steal, and had obsessive feelings that he was a spy, and had hallucinations of hearing, when he distinctly heard the medical officer telling the sister that he was undoubtedly a spy. These attacks only lasted an hour or two, leaving him with a headache. Headquarters decided that no disciplinary action should be taken, and that he should be evacuated as an insane person.

On admission to "D" Block he told his history as above simply and readily. He showed much intelligence, no abnormal signs or symptoms whatever, and had a large amount of insight into his psychopathological tendencies. He feels at present no desire to make himself out any different from what he really is, and for the future he thinks that the humiliation he passed through of late will be a lesson to him for evermore. He says he would certainly desire to join the Intelligence Service if that were possible, but is afraid he would not be trusted. He would be quite happy though if he could study for an Arts degree at a university and become an author, when he would write mystical and imaginative stories and articles. Except for the special

occasions spoken of he has never had any desire to steal, and at those times he feels that he was the subject of much anxiety and mental conflict, and that the pilfering seemed to relieve his mind.

In this case we see the usual mechanisms of pseudologia phantastica typified. The tendency to pathological lying started in his early formative years, for if such a tendency does not develop during these years one would probably never become a pathological liar. Like all such liars he had a purpose, *i.e.*, to enhance his own personality, to tell something interesting, and the ego motive was greatly to the fore. There was for many years a coercive impulse for self-expression with an accompanying feeling of desire and dissatisfaction. The normal dissatisfied person contents himself with fancy formations which he keeps to himself, but the individual with pseudologia phantastica is unable to adapt himself to reality; fiction, imagination, and real life are not separated, and there is a desire to play a rôle according to the ego complex involved. Our patient's fiction reading fanned into a more lively flame his inherent ambition for notoriety which previously had been growing on a very fertile soil, while his particular environment gave him a special chance to adopt a character which had long been maturing. Undoubtedly his father's attitude towards him stimulated him to greater efforts towards an expansion of his ego, and had his peculiar mentality been more understood and his natural interests developed and drafted off into the right direction, much, if not all, of his later pathological behaviour might have been obviated. Much capacity for useful and good creative work lies in these individuals, and much may be expected of them if, in their early years, they are understood and educated accordingly. The future attitude of this patient towards reality and truth will much depend upon the environment and situations in which he is placed. His tendency to pathological lying arises from unconscious impulses which will again become coercive when circumstances give him little or no chance of his desires being fulfilled. His kleptomaniac acts at certain periods are interesting. Notwithstanding the scepticism which is naturally felt by the average individual when such acts are stated to have a psychopathological basis, there is no doubt but that they do depend on some more or less obscure mental factor which was certainly operative in this particular case. Glueck, in his studies on forensic psychiatry, gives an

analysis of a case of kleptomania from a psychoanalytic point of view, and although to many his deductions may not be convincing, they are at any rate highly suggestive. Healy, in his observations of juvenile delinquents, found constantly that stealing had taken place as the result of mental conflicts.

CASES OF DISSEMINATED SCLEROSIS IN SOLDIERS WHO HAVE SERVED OVERSEAS.

By CECIL WORSTER-DROUGHT.

IT is admitted that true disseminated sclerosis is very rarely seen in soldiers, although various war neuroses are often erroneously diagnosed as such. In four years' neurological work in the army I have encountered only eight definite cases and two probable cases of disseminated sclerosis in soldiers who have served with an expeditionary force. No case was met with until December 1916.

CASE I.—Private B., Essex Regiment, aged 43, examined December 1916.

History.—The patient had been in the army prior to the war and had served in India for over twelve years; he contracted malaria in 1903, and had had several attacks since, the last being in 1913. He re-enlisted in August 1914, proceeded at once to France, and served in the line until about April 1916, when he began to complain of weakness in the small of the back and of his knees occasionally "giving way"; later, he experienced severe headache and deficient bladder control. In August 1916 he was invalided home as a case of "neurasthenia."

Physical Signs.—Cranial nerves: nystagmus (lateral); pupils small, equal, react to light and accommodation; left optic disc shows pallor; slight nerve deafness on left side.

Sensation normal.

Some degree of spasticity in lower limbs; knee jerks + + + ; right, slightly greater than left; ankle jerks + + ; no ankle clonus; plantar reflexes—bilateral extensor. Abdominal and cremasteric

reflexes absent. No intention tremor. Romberg's sign +; slight ataxia of left arm.

Cerebro-spinal fluid = four cells per c.mm.; Wassermann negative.

The second case, in which there was also a history of malaria, was not seen until nearly a year later, November 1917.

CASE II.—Private H., M.T., A.S.C., aged 33. Examined November 1917.

History.—No illnesses prior to enlistment. The patient served for sixteen months in German East Africa, and had there suffered from dysentery and repeated attacks of malaria. For the past nine months he had complained of gradually increasing weakness in the legs, and also of hesitancy of speech. He was invalided home and arrived two months ago.

Physical Signs.—Cranial nerves: well marked nystagmus; pupils equal and react normally; discs normal; speech somewhat staccato and inclined to be "scanning."

Sensation normal.

Spastic gait; knee jerks +++; ankle jerks, right +++, left ankle clonus; plantars—left, extensor; right, indefinite.

Abdominal and cremasteric reflexes absent.

No intention tremor.

Romberg's sign negative but "Rombergism" is present, also ataxia of left arm (finger-nose test).

Cerebro-spinal fluid: cytology normal, and both cerebro-spinal fluid and blood yield a negative Wassermann reaction.

CASE III.—Sergeant H., R.A.M.C., aged 30. Examined November 1917.

History.—No previous illnesses. He enlisted in June 1915, proceeded to France in January 1916, and served mainly with field ambulances during his period of active service. On several occasions he was under shell fire and was rendered "dazed" by shell explosions in his vicinity. About December 1916 he began to complain of intense "nervousness," mental confusion, and occasional "stiffness" of the legs. He was able to carry on, however, until February 1917, when he developed "trench fever." Following this, he was invalided home.

Physical Signs.—Cranial nerves: rotatory nystagmus; pupils equal and react normally; optic discs normal; slight nerve deafness in left ear.

Sensation—general hyperæsthesia.

Spastic gait; knee jerks + + + ; ankle jerks + + ; no ankle clonus; plantars—bilateral extensor.

Abdominal reflexes—left, absent; right, very sluggish; cremasterics absent.

No ataxia, intention tremor, or speech changes.

Cerebro-spinal fluid and blood. Wassermann reaction negative.

CASE IV.—Private S., R.E., aged 29, examined November 1917.

History.—The patient enlisted in May 1915; three months later he was involved in a motor accident, and is stated to have been "unconscious" for twenty-four hours. He has complained of occasional pain in the lumbar region ever since. In July 1916 he went to Salonika, but did very little active duty, and was invalided home in August 1917.

He now complains of pain and stiffness in the back, giddiness, especially in the semi-darkness, occasional "giving way" of the legs, and general weakness.

Physical Signs.—Cranial nerves: lateral nystagmus; pupils equal and react normally; optic discs normal; speech normal.

Sensation normal.

Well-marked intention tremor.

Some degree of spasticity in lower limbs; knee jerks + + + ; ankle jerks + + ; no ankle clonus; plantars—left, extensor; right, indefinite.

Abdominal and cremasteric reflexes absent.

Slight ataxia of both arms and legs.

Cerebro-spinal fluid and blood both yield a negative Wassermann reaction.

In the following case the condition appears to have been present prior to the outbreak of war; nevertheless it is somewhat remarkable that he was able to remain on active service in France with an infantry unit for three years before being invalided home.

CASE V.—Private D., Durham Light Infantry, aged 27. Examined June 1918.

History.—Enlisted 1908. He states that towards the end of 1913 he began to complain of occasionally "seeing double," but that it did not interfere seriously with his duties. He proceeded to France in August 1914, was in the retreat from Mons, and remained on duty in the line for the greater part of the time until invalided home in October 1917 with "paralysis of the right leg."

It appears that he developed a paresis of his right leg, and that right arm "felt heavy." This condition gradually improved. A note on his Medical History Sheet on 15th January 1918, states "Paralysis of left external rectus. No paralysis of limbs. Right knee jerk brisker than left."

A further note on 16th March states "bilateral nystagmus."

Physical Signs (when examined in June 1918).—Cranial nerves: lateral nystagmus; diplopia on looking to left, but no apparent paresis; pupils moderate, equal, react normally; speech somewhat slurred.

Sensation normal.

Supinator, biceps and triceps jerks—brisk and equal on the two sides. Knee jerks + + +; left ankle clonus with "tendency" on right; plantars—left, extensor; right, indefinite. Spasticity of the lower limbs.

Abdominals: right, very slight; left, absent.

Romberg's sign +.

Cerebro-spinal fluid: cells, 3 per c.mm; Wassermann reaction negative.

Blood: Wassermann reaction negative.

Case VI., the most profound of the series, was met with ten months after his discharge from the army; it is the only case in which there was a definite history of true "shell shock," and in which tremor was a most prominent feature. The patient was seen while under the care of Dr Harry Campbell, to whom I am indebted for allowing me to include the case.

Case VI.—W. G. C., late Leicester Regiment, aged 23. Examined May 1918.

History.—No illnesses prior to enlistment. He enlisted in August 1914, and proceeded to France early in 1915. In December 1915, while in a trench, he was "buried" by a shell explosion; he lost consciousness, and did not remember any more until he arrived at the Casualty Clearing Station. He continued to feel somewhat "shaky" and nervous, but returned to France in July 1916, being invalided home a month later with a flesh wound of the thigh. On returning to his depôt in France in 1917, he began to experience weakness in the lower limbs, and occasionally his legs would "give way." Finally he developed tremors, and was discharged from the service as medically unfit in July 1917.

Following this he became considerably worse. When examined in May 1918 his condition was as follows:—

Physical Signs.—Cranial nerves: pupils equal and react normally; optic discs normal; marked lateral nystagmus.

Sensation: some epicritic loss over dorsum of foot.

Somewhat coarse side to side tremor of head; tremor of hands becoming very marked on intention.

Spastic paraplegia; all muscles show some degree of voluntary movement, but the weakness of the lower limbs is sufficient to render the patient almost unable to walk. Knee jerks +++; bilateral patellar clonus; bilateral ankle clonus; plantar reflexes —bilateral and well-marked extensor.

Abdominal and cremasteric reflexes absent.

Incoördination and ataxia of both arms and legs.

In spite of the history of "shell shock," it will be seen that the above patient was able to return to France, and that definite symptoms of disseminated sclerosis did not develop until fourteen months after the concussion due to the explosion.

CASE VII.—Private M., aged 23, examined June 1918.

History.—The patient enlisted in 1912, overstating his age, and proceeded to France in August 1914; he took part in the retreat from Mons and remained in the line until March 1916, being then invalided home with a bullet wound in the thigh. For the past four or five months he has complained of unsteadiness of gait and "staggering," especially during the first few hours after getting up, and he has also experienced occasional diplopia.

Physical Signs.—Cranial nerves: pronounced nystagmus; pupils and discs normal; fine tremor of tongue; speech somewhat staccato.

Sensation normal. No tremors.

Spastic gait; knee jerks +++; ankle jerks ++; no definite ankle clonus; plantars—bilateral extensor.

Abdominal reflexes absent.

No definite ataxia, but all movements are inclined to be slow and "heavy," and he is obviously unsteady in turning round sharply.

In the above case there was a history of syphilis contracted in France nearly three years before the above date; the patient stated that he received a full course of intravenous treatment and

"mercury injections." His blood and cerebro-spinal fluid were examined with the following results:—

Blood: Wassermann reaction negative.

Cerebro-spinal fluid: cells 5 per c.mm. Globulin—negative. Wassermann reaction negative.

It will be noted that although the patient was twenty months in France, the symptoms of disseminated sclerosis did not develop until over eighteen months after his return home.

CASE VIII.—Private A., Wilts Regiment, aged 40, examined June 1918.

History.—He enlisted in June 1916, and proceeded to France in January 1917. After a few months in the line he began to complain of fatigue on exertion; later he noticed difficulty in articulating his words. He was able to carry on as an officer's servant, however, until invalided home in February 1918.

Physical Signs.—Cranial nerves: nystagmus on lateral deviation of eyes; pupils small but react normally; weakness of left external rectus muscle; speech distinctly hesitant and scanning.

Sensation: normal. No definite tremor.

Knee jerks +; ankle jerks +; no ankle clonus; plantars—right, extensor (well marked); left, extensor (slight).

Abdominal and cremasteric reflexes absent.

Cerebro-spinal fluid: cytology normal and Wassermann reaction negative.

Blood: Wassermann reaction negative.

In two further cases the condition is somewhat indefinite, but a diagnosis of early disseminated sclerosis is probable in both.

CASE IX.—Gunner L., R.F.A., aged 32, examined January 1918.

History.—Enlisted May 1916, and served with the R.F.A. in France from October 1916 to December 1917, when he contracted "trench fever," following which he was invalided home. During convalescence he complained of weakness in the lower limbs, which symptom has gradually increased.

Physical Signs.—Cranial nerves: pupils equal and react normally; left-sided ptosis; no nystagmus; cranial nerves otherwise normal. Somewhat spastic gait; knee jerks + +; ankle jerks + +; no ankle clonus; plantars—left, extensor; right, indefinite. Abdominals—very slight.

No tremors or other signs.

Cerebro-spinal fluid: cells, 4 per c.mm. Wassermann reaction negative.

Blood: Wassermann reaction negative.

CASE X.—Driver C. A., R.F.A., aged 42, examined October 1918.

History.—Enlisted April 1917, having had no previous illnesses. He was drafted to France in September 1917, being transferred to Italy in November of the same year and serving in the field until January 1918; he then developed a septic finger, which later involved the bone of the terminal phalanx. He was invalided to England in March 1918. Soon after arrival home, and while still in hospital, he began to complain of weakness in the legs.

Physical Signs.—Cranial nerves: marked nystagmus; pupils small but react to light and accommodation; speech distinctly "scanning." Knee jerks +++; ankle jerks ++; no ankle clonus; plantars—flexor. Slight intention tremor.

No other physical signs.

Cerebro-spinal fluid: cells, 4 per c.mm. Globulin—negative. Wassermann reaction negative.

As regards the relation of active service to the disease, its position as an actual exciting cause is somewhat doubtful. Up to the present time, at least, it is admitted that true disseminated sclerosis is rarely seen in soldiers. In cases of death without external injury, resulting from the concussion brought about by shell explosions, numerous punctate hæmorrhages have been found, on post-mortem examination, scattered throughout the white matter of the central nervous system. It has been suggested that in similar cases of true "shell shock" not sufficiently severe to prove fatal, small hæmorrhages, if present, would later become sclerosed and, in fact, a condition of "disseminated sclerosis" would result. Even if this be true, however, the physical signs of the clinical entity known as disseminated sclerosis are quite distinct from those seen some time after severe "shell shock"; the latter, indeed, are almost always of a purely hysterical nature.

In the above series of cases, it will be noted that in only one (Case VI.) was there a definite history of true "shell shock"; in this case, symptoms of disseminated sclerosis did not appear until four months after the concussion due to the explosive. During this interval the patient had been to France a second time, and served there a month before being wounded. It is probable, however, that the stress and anxiety of thirteen months'

active service, terminating in "shell shock" and followed by the additional strain of a second visit to the firing line, served to accelerate the symptoms of disseminated sclerosis which developed six months after his final return to England. The same is probably true of Case VII., with twenty months' active service; although again the symptoms did not appear until some time (in this case eighteen months) after his arrival home. Case V. is noteworthy in that the history suggests that the patient was suffering from disseminated sclerosis prior to the war; nevertheless, he was able to endure the strain of three years' continuous infantry service before it was necessary to invalid him home with a more definite condition. In Cases I. and III., the symptoms developed while the patients were actually serving in France, after twenty months' service in one case and twelve months' in the other. It seems that in Case VIII. the disease appeared after only a few months' active infantry service; the patient, however, was able to carry on with lighter duty until he had completed twelve months in France. Case II. has no association with actual warfare, but the hardships of climate and illness in East Africa may have accelerated the progress of the disease. In Case IV. there appears to be no definite relation to war service beyond possible anxiety. Cases IX. and X., with four and thirteen months' active service respectively, each complained of symptoms of disseminated sclerosis only after being invalided home with entirely different complaints.

It is a somewhat striking feature that tremors, so common in war neuroses, are absent in most of the above cases of disseminated sclerosis. In one only (Case VI.) was there any tremor of the hands at rest, while but two other cases exhibited intention tremors.

From a consideration of the foregoing observations, the general conclusion is that there is at present no evidence that war service is a *direct* cause of disseminated sclerosis. In soldiers predisposed to the condition, however, it is more than probable that the stress of warfare acts as an exciting cause and accelerates the development of the disease.

Abstracts.

BRAIN, SKULL, &c.

NOTES ON A SERIES OF ONE HUNDRED AND SIXTY-ONE
(235) **CASES OF GUNSHOT WOUNDS OF THE HEAD TREATED AT NO. 7 GENERAL HOSPITAL, MAY TO AUGUST 1916.**
W. W. WAGSTAFFE and W. J. ADIE, *Journ. Roy. Army Med. Corps*, 1918, xxxi., Oct., p. 307.

THE authors' conclusions are as follows:—

1. There is a great advantage in being able to keep patients in one place after operation without the necessity for subjecting them to the serious vibration involved in a journey.
2. Before operation patients stand transport very well, even very seriously wounded cases.
3. The nursing of head cases demands a large number of highly trained attendants.
4. Before operation every case of gunshot wound of the head should be X-rayed.
5. Recovery of function in paralysis, the result of gunshot wounds of the head, is most remarkable.
6. Retention of foreign body in the brain is not immediately and necessarily hurtful. Twenty-three cases of this class have already gone to England from this hospital.

A. NINIAN BRUCE.

THE PISTON ACTION OF THE VERTEBRAL COLUMN DE-
(236) **VELOPED IN CERTAIN TYPES OF CRANIAL FRACTURES.**
N. W. SHARPE, *Bullet. Johns Hopkins Hosp.*, 1918, xxix., p. 281.

AN airship which made a false start, crashed to earth, the mechanic in the forward cockpit being killed.

On examination of his skull, the entire basal mass was found to be driven superiorly within the cranial cavity to an extent varying at different points from $\frac{1}{8}$ in. to $\frac{3}{4}$ in. Apparently the vertebral column, acting as a piston, drove before it the cranial base to invade the cranial cavity. The spinal cord had been severed at approximately its junction with the medulla, the distal stump lying posteriorly upon the occipital bone.

A. NINIAN BRUCE.

SPINAL CORD, &c.

LESION OF THE 3rd LUMBAR ROOT FROM A GUNSHOT
(237) **WOUND. (Lesione della 3a radice ombare per ferita d'arma da fuoco.)** G. B. MODENA, *Riv. di Patol. nerv. e ment.*, 1918, xxiii., p. 16).

WHILE complex vertebro-spinal lesions are fairly frequent in the wounded, pure radicular lesions of limited extent are uncommon. The roots most frequently involved are those of the brachial plexus, while wounds of the lumbar and sacral plexus are less common. Isolated lesions of a single root are still more exceptional.

The present case is that of a soldier who was wounded by a machine gun bullet, which entered on the right side of the vertebral column, between the 3rd and 4th lumbar vertebræ, and made its exit at the left of the umbilicus.

The circumference of the right thigh was 2 cm. less than that of the left, the right quadriceps was flaccid and atrophied, especially the vastus internus. Examination of sensibility showed marked anæsthesia to tactile, thermal, and painful stimuli on the anterior-inferior surface of the right thigh corresponding to the zone of innervation of the 3rd lumbar root. This hypæsthesia was most marked on the antero-internal aspect of the lower third of the thigh and inner surface of the knee. There was slight hypæsthesia on the antero-superior aspect of the thigh corresponding to the zone of innervation of the 2nd lumbar root, and along the inner surface of the leg in the territory of the internal saphenous (4th lumbar root). Electrical examination showed marked diminution of faradic excitability in the vastus internus, and slight hypo-excitability in the other divisions of the quadriceps and in the sartorius. The diminution of excitability was less to the galvanic current, the contractions not being sluggish, and there being no inversion of the formula of the muscles innervated by the obturator nerve; the adductor magnus and gracilis did not show any anomalies of contraction, and the adductor longus showed slight hypo-excitability as compared with the sound side. The muscles of the posterior surface of the thigh and all the muscles of the leg responded normally. J. D. ROLLESTON.

THE TREATMENT OF PARAPLEGIA FROM GUNSHOT OR
(238) **OTHER INJURIES OF THE SPINAL CORD.** A. W. MAYO-ROBSON, *Brit. Med. Journ.*, 1917, ii., Dec. 29, p. 853.

THE author asks why should we not be able to obtain return of function in a damaged spinal cord by excising the injured section, and transplanting into the gap thus made a portion of the spinal

cord of a recently killed rabbit, or perhaps better, of a sheep or calf. He considers this operation should be tried in cases otherwise incurable, and mentions a case of fracture of the seventh dorsal vertebra with complete paraplegia and loss of sphincter control in which he proposes to transplant sections of a rabbit's cord after excision of the damaged area of the cord.

A. NINIAN BRUCE.

NERVES.

SOME POINTS ARISING IN NERVE INJURIES. H. S. SOUTTAR, (239) *Brit. Med. Journ.*, 1917, ii., Dec. 22, p. 817.

IN all the cases seen the injury was primary. In no case was there any evidence of a steadily increasing block, the result of strangulation of an uninjured nerve by fibrous tissue or callus, and the wide acceptance of this idea is due to errors of observation. One third of the fibres of any nerve may, in general, be destroyed without any permanent loss of function.

The diagnostic features may be grouped under four headings—sensory, trophic, motor, and electrical. These are described.

A. NINIAN BRUCE.

GUNSHOT WOUNDS OF THE PERIPHERAL NERVES. C. NOON, (240) *Lancet*, 1918, ii., July 27, p. 100.

THE diagnosis of an injury to a peripheral nerve ought to be made at the earliest possible time.

Successful recovery depends upon early, correct, and continuous treatment.

Primary suture should be considered and practised whenever possible.

There should be no unnecessary delay in exploring a nerve if there is sufficient evidence that it has received some injury resulting in a macroscopic pathological lesion.

It is almost certain that some macroscopical lesion is present in cases which show no signs of recovery after four months' treatment.

Operations on injured nerves should only be done in well-equipped general hospitals, and by those surgeons who have ample experience of such cases.

Sufficient attention is not usually paid to the early pre-operative and post-operative treatment, and paralytic deformities and shortened muscles are often the result of ignorance and neglect.

The extreme gravity of an injury to a peripheral nerve is not sufficiently realised by the general profession.

A. NINIAN BRUCE.

CONTRACTURES AND CONGEALED HANDS. (Contractures et
(241) **mains figées.)** P. CHAVIGNY, *Paris Méd.*, 1918, ii., p. 157.

UNDER appropriate treatment the deformity known as "congealed hands" is cured rapidly, sometimes instantaneously, even in cases of very long standing. Chavigny was surprised to find on examination of cases of this kind which had been shifted from hospital to hospital under the monotonous diagnosis of contracture that palpation of the muscles revealed a state of complete and absolute relaxation.

Being unwilling to generalise from a small number of cases Chavigny examined all the congealed hands labelled "contractured" in large neurological departments and found that none of them showed any *permanent* contractures. This does not mean that there was never any contracture, but the contracture was imminent not permanent, contracture of the muscle only taking place when an attempt was made to straighten out the flexed fingers. "Congealed hands" should be regarded as purely psychical and are of neurological interest only so far as the differential diagnosis is concerned. J. D. ROLLESTON.

ON LESIONS OF THE SYMPATHETIC IN WOUNDS OF NERVES
(242) **OF THE LIMBS. (Contributo allo studio delle lesioni del simpatico nelle ferite dei nervi degli arti.)** L. FERRANINI, *Riforma Med.*, 1917, xxxiii., pp. 226, 253.

ŒDEMA of the extremities which is occasionally seen after traumatic lesions of the peripheral nerves, especially of the median and internal popliteal and occasionally also of the spinal cord, when not due to direct vascular lesion, depends on a destructive or irritative lesion of the sympathetic fibres which accompany those of the cerebro-spinal system. The fact that the œdema is most pronounced in lesions of the median and internal popliteal is due to the fact that these two nerves are most richly supplied with sympathetic fibres. J. D. ROLLESTON.

PARALYSIS OF THE LEFT RECURRENT LARYNGEAL FROM
(243) **GUNSHOT WOUND OF THE THORAX. (Paralisi del ricorrente sinistro per ferita d'arma da fuoco nel torace.)** N. SAMAJA, *Gazz. d. Osp.*, 1918, xxxviii., p. 113.

THIS is probably the first case on record of an isolated lesion of the left recurrent laryngeal nerve causing paralysis of the vocal cord without a concomitant lesion of the large vessels, the phrenic nerve, sympathetic or lung, with survival of the patient.

J. D. ROLLESTON.

THE REPAIR OF LARGE GAPS IN PERIPHERAL NERVES BY
(244) **NEUROPLASTY.** KENNETH A. J. MACKENZIE, *Surgery, Gynæcol., and Obstetrics*, 1918, xxvii., p. 353 (5 figs.).

FROM a study of three cases the writer concludes:—

1. That regeneration and recovery of function is promoted by the use of nerve flaps.

2. That both central and peripheral flaps can be used for such purposes.

3. That a peripheral flap, by laying down a nerve path, may promote regeneration over a great gap; in one case quoted regeneration occurred over a gap ten and three-quarter inches in length.

4. That the approximation of nerves and their repair should be done in all cases with the least possible delay. (This would apply as well to cases which are infected as to clean cases.)

5. That the arrest of trophic shock can be promoted by early closure of large gaps by flaps.

6. That unimpaired nerve tissue should always be utilised for the effective repair of damaged nerves.

7. That in their repair, nerves can be successfully sequestrated in muscular tissue so as to promote their own regeneration and that of the muscles in which they are embedded.

8. That the principle of sequestration can be utilised in proper cases so as to avoid infected zones in wounds, and also scars and other obstacles to nerve repair. LEONARD J. KIDD.

THERMALGIA (CAUSALGIA). JOHN S. B. STOPFORD, *Lancet*, 1917,
(245) ii., p. 195. (Illustr.)

THIS paper considers the clinical, pathological, anatomical, and physiological problems revealed by a study of a large number of cases of painful gunshot injuries of nerves.

Clinical examinations show that the constant symptom is the burning pain, and that the somewhat variable associated symptoms are always manifestations of nerve irritation.

Histological investigation of injured pieces of nerve show that two constant conditions are present—first, partial division, and secondly, intraneural fibrosis—but neither the macroscopic nor microscopic changes are characteristic. Irritation appears to be the cause, and it is suggested that this reflexly causes vaso-dilatation through the depressor fibres, which have been demonstrated in most of the large nerve trunks.

Thermalgia is curiously confined almost entirely to injuries of the median and internal popliteal or posterior tibial nerves, and it is thought that this is due to these differing anatomically from

other nerves of the limbs in containing proportionately a larger number of vaso-motor fibres for the supply of the palmar and plantar arches and their respective digital branches. These vessels, as is to be expected from their position in the circulation of the limbs, receive a very much richer nerve supply than the larger and more proximal arteries.

The lesson with regard to treatment seems to be to relieve the irritation as early as practicable. It is only possible to deal with the perineural scar and adhesions surgically, but the intraneural sclerosis can be relieved generally by ionisation with normal salt solution.

Injections of cocaine or alcohol may be used in the worst cases to relieve the pain, but its substitution for surgical procedures, which are directed against the progress of the irritation, is unwise.

AUTHOR'S ABSTRACT.

CLUB FOOT FROM CONTRACTURE AND PARALYSIS IN THE NEUROLOGY OF WAR. (I piedi torti da contrattura e da paralisi nella neurologia di guerra.) E. PERRERO, *Riv. di Patol. nerv. e ment.*, 1918, xxiii., p. 97.

(246)

THE paper is based on eighteen months' study of cases made by Perrero while in charge of the neurological department of Queen Margaret's Hospital at Turin. His conclusions are as follows:—

1. Contractures and functional paralysis, which do not depend on an organic lesion of the nervous or muscular system, or which are secondary to only slight changes in these tissues, are of hysterical or psychasthenic origin. The hysterical contractures and paralyses may correspond to Babinski's doctrine, *i.e.*, they are produced by suggestion and curable by persuasion. But in many cases, though they do not conform to the conditions laid down by Babinski, they should still be regarded as hysterical. This group consists of those contractures and paralyses which develop immediately or shortly after the wound, accompanied by disturbances of sensibility, and are refractory to the most careful treatment. Psychasthenic contractures and paralyses are produced either by habit (tonic tics) or by a phobia of action and movement, or aboulia.

2. It is not yet definitely established whether the trophoneurotic phenomena observed in some cases, and which attain a considerable development, are causally connected with hysterical and psychasthenic contractures and paralyses.

3. These angioneurotic phenomena are most likely to be found in vagotonic subjects.

4. The group of reflex paralyses and contractures proposed by

Babinski is not accepted by Perrero on physiological and clinical grounds.

5. These motor disturbances may be exaggerated by the patient affected with them, but cannot be simulated persistently for months and years.

6. The prognosis of these conditions, especially those of psychasthenic origin which are not cured in time, is unfavourable.

J. D. ROLLESTON.

MENINGITIS.

CONTROL OF MENINGITIS. SIMON FLEXNER, *Journ. Amer. Med. Assoc.*, (247) 1918, lxxi., pp. 638-639.

THE source of meningitis in the Army and Navy is, in the first instance, the civilian population. Because healthy carriers of the meningococcus exist there, they have been introduced among the troops.

There is universal agreement that the meningococci compose a complex group rather than a single, fixed type of micro-organisms. Recent studies also indicate that this group contains two immunologic varieties of meningococcus which are responsible for from 75 to 80 per cent. of all cases of epidemic meningitis. The remainder of the cases are produced by meningococci of less fixed qualities and of less parasitic properties. Healthy carriers tend to harbour not the highly parasitic, but the less pathogenic varieties of meningococci. Once cases become frequent, however, the number of healthy carriers of the parasitic kind rises.

This distinction in types may now be readily made on the basis of specific agglutination with monovalent immune serums derived from rabbits, and it becomes a question whether, as in the case of the pneumococcus, only carriers of the parasitic varieties should be regarded as menacing. A. NINIAN BRUCE.

CEREBRO-SPINAL MENINGITIS WITH A LATE RELAPSE.
(248) **PSYCHICAL AND ORGANIC SYMPTOMS SIMULATING GENERAL PARALYSIS IN CONVALESCENCE. (Méningite cérébro-spinale à rechute tardive; symptômes psychiques, et organiques simulant la paralysie générale pendant la convalescence.)** E. DE MASSARY and L. TOCKMANN, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, 3 sér., xlii., p. 480.

THE relapse occurred four months after the end of the original attack. As the naso-pharynx and blood were negative, the meningococcus was probably lying latent in the meninges, especially as the patient had been suffering from headache, backache,

and debility from the time of the first attack. The cause of the recrudescence of the virulence of the meningococcus was probably an anti-typhoid inoculation, due to the meningeal reaction which so frequently follows anti-typhoid vaccination. The writers are therefore opposed to inoculating or reinoculating convalescents from cerebro-spinal meningitis against typhoid. Although intrathecal injections of serum were given in March, no symptoms of anaphylaxis occurred after the injections in September, probably owing to the precautions taken by the writers, who gave a preliminary subcutaneous injection, and administered the intrathecal injection very slowly.

The psychical and organic symptoms of general paralysis which the patient presented in convalescence from the relapse consisted in weakness of memory, delirium, exaggerated optimism, disturbance of speech (transient aphasia, followed by paraphasia), emaciation, and cachexia, which have not hitherto been recorded after cerebro-spinal meningitis, and are probably the result of the chronicity of the diffuse meningo-encephalitis in this case.

J. D. ROLLESTON.

EPILEPSY FOLLOWING CEREBRO-SPINAL MENINGITIS.

(249) **(Épilepsie consécutive à la méningite cérébro-spinale.)** P. SAINTON, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, 3 sér., xlii., p. 368; NETTER, *ibid.*, p. 370.

ALTHOUGH a fairly large number of cases of cerebro-spinal meningitis have occurred in the present war, very little has been published concerning the occurrence of epilepsy as a sequel. Sainton's case was that of a young soldier without any family or personal history of epilepsy or syphilis, who contracted cerebro-spinal meningitis in May 1915. The onset was characterised by convulsions which rapidly disappeared. The disease was accompanied by a high temperature (104·8), but was rapidly cured by four injections of antimeningococcal serum. In January 1916, without any obvious cause, he had two epileptic attacks, which recurred in April, July, December, and January and March 1917. The cerebro-spinal fluid at the time of the first attack was clear and sterile, but showed a slight excess of polymorphonuclears and lymphocytes.

In the subsequent discussion Netter stated that out of 253 of his cases of cerebro-spinal meningitis which had recovered only two had developed epilepsy. He was inclined to the view that epilepsy was most likely to develop as a sequel in cases where hemiplegia or partial convulsions had occurred in the acute stage.

J. D. ROLLESTON.

SEVERE MENINGOCOCCUS B MENINGITIS. PERSISTENCE OF
(250) **THE SYMPTOMS IN SPITE OF INTENSIVE SEROTHERAPY. RECOVERY AFTER EARLY PUNCTURE OF THE LATERAL VENTRICLES.** (**Méningite cérébro-spinale grave à méningocoques B. Persistance des symptômes malgré une sérothérapie intensive. Guérison après trépano-ponction précoce des deux ventricules latéraux.**) MORICHAU-BEAUCHART, BAUDOIN, and DUBOIS, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, 3 sér., xlii., p. 444.

A SOLDIER, aged 22, was admitted to hospital with meningitis, and was treated with anti-meningococcic serum from the first day of disease. In eight days he was given 150 c.c. of polyvalent serum, and 100 c.c. of serum B intrathecally without any benefit. On the ninth day the lateral ventricles were punctured on each side at a point 35 mm. in front of and external to the bregma. Turbid fluid was removed by slight aspiration, and 10 c.c. of serum B was injected into the left, and 5 c.c. into the right ventricle. Immediate improvement took place, and in a few days all the symptoms disappeared and convalescence took place. The writers insist on the necessity of puncturing each ventricle, owing to the frequent absence of communication between the two.

J. D. ROLLESTON.

PERSISTENCE OF THE REDUCING POWER OF THE CEREBRO-
(251) **SPINAL FLUID IN CEREBRO-MENINGEAL INFECTIONS OF TRAUMATIC ORIGIN.** (**Persistance du pouvoir réducteur du liquide cephalo-rachidien dans les infections cérébro-méningées d'origine traumatique.**) MESTREZAT, WEISSENBACH, and BOUTTIER, *Compt. rend. Soc. de Biol.*, 1918, lxxxi., p. 655.

DISAPPEARANCE or diminution of the reducing power of the cerebro-spinal fluid in acute non-traumatic meningitis is a well-known phenomenon. The close relation often observed between this diminution in the cerebro-spinal glucose and the presence of organisms in the cerebro-spinal fluid justified the conclusion that this diminution of reducing power was a sign of infection. Cases of infected wounds of the skull, however, recently observed by the writers, have led them to the conclusion that it is no longer possible to count on the diminution or disappearance of this reducing power. They relate four cases in which infection was proved by cultures and by direct examination, with death on the 5th, 6th, 9th, and 32nd day. In these cases the reducing power not only persisted, but in three out of four cases exceeded the normal.

J. D. ROLLESTON

A REPORT ON ANTIMENINGITIS VACCINATION, AND
(252) **OBSERVATIONS ON AGGLUTININS IN THE BLOOD OF CHRONIC MENINGOCOCCUS CARRIERS.** FREDERICK L. GATES, *Journ. Exper. Med.*, 1918, xxviii., pp. 449-474 (3 figs.).

A MENINGOCOCCUS vaccine suspended in salt solution has been given subcutaneously as a prophylactic to about 3,700 volunteers in three injections of 2,000 million, 4,000 million, and 4,000 or 8,000 million cocci at weekly intervals.

These doses rarely caused more than the mildest local and general reactions. Exceptionally, a more severe reaction emphasized the presence of an unusual individual susceptibility to the vaccine. In such instances the symptoms were in part those of meningeal irritation, and sometimes simulated the onset of meningitis.

Specific meningococcus agglutinins have been demonstrated in the blood serum of chronic carriers of the meningococcus. Evidence is thus brought forward, that the relative immunity of chronic carriers to epidemic meningitis may be due to the presence of specific antibodies in the blood stream.

A. NINIAN BRUCE.

TYPHOID FEVER.

A CASE OF ORGANIC HEMIPLEGIA COMPLICATING TYPHOID
(253) **FEVER. (Un cas d'hémiplégie organique compliquant une fièvre typhoide.)** R. CESTAN, P. DESCOMPS, J. EUZIÈRE, and R. SAUVAGE, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, xlii., p. 540.

ORGANIC hemiplegia is a rare complication of typhoid fever. In 1907 Barié and Lian could find only 35 cases on record (*v. Review*, 1908, vi., p. 37). The present case occurred in a soldier, aged 24, who developed right hemiplegia and aphasia during the febrile period of typhoid fever. All the signs of an organic lesion were present. The Wassermann reaction was negative.

J. D. ROLLESTON.

TWO CASES OF NERVOUS COMPLICATIONS OF PARA-
(254) **TYPHOID: 1. POLYNEURITIS AND PARATYPHOID A. 2. HEMIPLEGIA AND PARATYPHOID B. (Deux cas de complications nerveuses des paratyphoides: 1° Polynévrite et paratyphoide A; 2° Hémiplégie et paratyphoide B.)** R. CESTAN, P. DESCOMPS, J. EUZIÈRE, and R. SAUVAGE, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, 3 sér., xlii., p. 508.

ONLY a few examples of nervous complications in paratyphoid fever are on record, *e.g.*, the meningeal symptoms of the onset

(Achard, Grenet, and Fortineau), paralysis of the oculomotor nerve (Guillain and Barré), and peripheral facial paralysis (Rimbaud).

The first case reported by the present writer is the only example hitherto published of polyneuritis occurring in paratyphoid. There was a paresis of the lower limbs without any change in objective sensibility. Complete recovery took place. The second case is the first recorded example of hemiplegia in paratyphoid, and is attributed by the writers to cerebral arteritis. The Wassermann reaction was negative. J. D. ROLLESTON.

SOME CASES OF PERIPHERAL PARALYSIS FOLLOWING
(255) **TYPHOID FEVER. (Quelques cas de paralysies périphériques consécutives à la fièvre typhoïde.)** R. CESTAN, P. DESCOMPS, J. EUZIÈRE, and R. SAUVAGE, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, xlii., p. 506.

A RECORD of three cases occurring in convalescence from typhoid fever, in which a local predisposition played an important part in the pathogeny.

1. Neuritis of the left external popliteal following post-typhoid phlebitis of the left leg.

2. Neuritis of the left external popliteal occurring in a leg from which some varicose veins had been removed four years previously.

3. Ulnar neuritis occurring in a patient who had fractured his elbow four years previously. J. D. ROLLESTON.

"SHELL SHOCK."

DELAYED CONCUSSION DUE TO SHELL EXPLOSION. (Les
(256) **commotions "retardées" par explosion d'obus.)** ANDRÉ LÉRI, *Presse Méd.*, 1918, p. 403.

THE symptoms of organic lesions of the brain and cord do not always appear at once, but may not develop until several days or even weeks after the accident. A striking feature of this delayed form is the occurrence of amyotrophy, the localisation of which is always irregular and does not correspond to any radicular or peripheral distribution. Its onset is sometimes rapid, but may be so slow and progressive as to escape notice. The prognosis of this delayed form is much better than in cases in which the symptoms develop immediately or soon after the accident. As regards the pathogenesis, the lesions may be due either to hæmorrhage from a very minute vessel or to softening of the tissues damaged by the shock or round the hæmorrhagic foci. The lesions are probably localised in the white substance which is less liable to undergo a

violent and extensive laceration and is more likely to admit of progressive recovery.

The cerebral lesions chiefly take the form of hemiplegia of a partial, dissociated and retrogressive form characteristic of cortical or subcortical lesions. The spinal manifestations, whether amyotrophic or pareto-amyotrophic, and which are sometimes accompanied by reflex disturbances but not by sensory changes, appear to be due to lesions of the antero-lateral columns rather than to hæmatomyelia of the grey substance.

J. D. ROLLESTON.

TRAUMATIC AND EMOTIONAL PSYCHOSES: SO-CALLED SHELL SHOCK. J. ROGUES DE FURSAC, *Amer. Journ. Insan.*, 1918, July, p. 19.

(257)

THE author distinguishes:—(*a*) Traumatic psychoses proper; (*b*) emotional psychoses; (*c*) the cases of war psychoses or so-called shell shock, which are really nothing but emotional psychoses.

In discussing the traumatic psychoses proper several groups of cases are mentioned. In one group the cerebral lesion is conditioned by either a compound or simple fracture of the skull, and in this group it is important to realise that the relation between the magnitude of the cerebral lesion and the gravity of the mental disorder is far from being absolute. The present war has furnished numerous instances of destructive and very extensive lesions, notably of the frontal lobes, which have been particularly well borne from the psychic as well as from the physical standpoint. In a second group of cases the traumatism may produce a localised brain lesion, but without involvement of the skull, *e.g.*, an internal hæmorrhage. The traumatism may also be the starting-point of a cerebral neoplasm. To emphasise the effects of direct violence to the skull a case of severe cerebral concussion is reported in detail.

In the emotional (pseudo-traumatic) psychoses the symptoms are caused, not by the traumatism, but by its accompanying emotion; in other words, they are of psychogenic origin. The etiology of these cases requires two factors: (1) a predisposed soil in the shape of an unduly emotional constitution; (2) an emotional shock. The treatment of emotional psychoses is a matter to be handled cautiously, for the reason that too much therapy often results in anchoring more and more firmly in the mind of the patient the idea of a serious illness. Treatment should therefore be tried with prudence, and discontinued as soon as it fails to bring the desired result, and dependence should be placed, firstly, on psychic treatment in the shape of

training the will, encouragement, and dispelling, by appeal to reason, the hypochondriacal notions which tend to arise.

The emotional psychoses, or so-called shell shock cases, fall into three groups.

In the first group the soldier is thrown by the explosion and receives a direct or indirect injury to the brain.

In the second group the subject presents signs of a cerebral or spinal lesion, with blood in the cerebro-spinal fluid, but there is no evidence of external violence.

In the third group there is no external violence, no hæmorrhage, no sign whatever of any organic lesion, but the patient, generally an exceptionally emotional subject, as a result of the hardships of the campaign, loses consciousness. There is first of all a state of confusion accompanied by dreams and complaints of headache and dizziness. The real cause of these cases is not therefore concussion, but an emotion, and instead of being called shell shock, these cases would be more correctly called "emotional war psychoses." The individuals destined for shell shock are the emotionally unstable, in whom the constitutional peculiarity has mostly manifested itself in their lives at occasions of painful emotion, and who react to events of the war as they have reacted to events of ordinary life, but in a manner infinitely more intense because the excitements are infinitely more powerful. In the mild cases the symptomatology is reduced to a brief dazed period, and at the end of a few hours, sometimes one or two days, of rest the subject returns to his usual condition. In the graver cases two phases may be distinguished: the first acute (phase of confusion), the second sub-acute (psychasthenic phase). The various symptoms of confusion, dream states, amnesia, heightened emotional states, deaf mutism, paralysis, &c., are all mentioned and discussed in detail.

The prognosis of all these cases is radically biased by the war itself. The prospect of returning to the front constitutes for many of the emotionally unstable an obstacle to recovery of such power that it is impossible to say if it alone might not suffice to keep up the neuro-psychic symptoms, and to impart to the disease the appearance of chronicity which has been noted in some cases. The fate of these patients will not be settled until peace has been signed. In the confused phase rest in bed, quiet, reconstructive medication is the treatment suggested. In the psychasthenic period, the best results are obtained by treating the patient in medical organisations at the front. The patient must be convinced that the symptoms which he presents are curable, and quickly curable. The author is strongly opposed to discharging these patients from the army,

but, on the other hand, he is strongly in favour of the majority of them being transferred to the auxiliary troops. Those exhibiting grave chronic symptoms should be kept in the special hospitals until the end of the war. Provided those responsible for their treatment proceed with firmness and prudence, this remnant of incurables, or pseudo-incurables, will be quite limited. D. K. HENDERSON.

THE TREATMENT OF CASES OF SHELL SHOCK IN AN ADVANCED NEUROLOGICAL CENTRE. WILLIAM BROWN, *Lancet*, 1918, ii., Aug. 17.
(258)

MOST of the cases came under observation within forty-eight hours of their breakdown, and of these 70 per cent. were returned to the line after an average of a fortnight's rest and treatment in hospital. This result is not due to the cure of their symptoms, but to their *prevention*. The essential factor of causation is the intense emotion of fear caused by the shell explosion. Auto- and hetero-suggestion come into play in fixing the symptoms, and in their later development and multiplication. Counter-suggestion also plays its part in cure, but the factors of greatest efficacy and importance in bringing about a permanent cure are persuasion and the sthenic emotions of confidence, conviction, and expectation. The "period of meditation" which often elapses is a period of subconscious emotional development. The final outbreak of the symptoms represents the failure of the effort of repression, or rather is a condition of the success of the psychological repression, the symptoms representing painful emotion being converted into physical innervations. The essential treatment is the "working off" of this repressed emotion, a process which Freud calls "abreaction." Mental analysis is a means to this end, and light hypnosis, applied under proper safeguards, is the quickest and most effective method of effecting this analysis, where amnesia is present and the case is seen early. For cases of neurasthenia, which are the more numerous, and involve emotional preoccupation often dating back many years, mental analysis and re-education, without hypnosis in any form, are the needful agents, although the abreaction of the original emotional disturbance is again essential. A. NINIAN BRUCE.

THE RAPID CURE OF HYSTERICAL SYMPTOMS IN SOLDIERS.
(259) A. F. HURST and J. L. M. SYMNS, *Lancet*, 1918, ii., Aug. 3, p. 139.

THE authors use simple persuasion and re-education combined with manipulation. They emphasize the importance of creating the proper atmosphere of cure. Hypnotism was discarded as the

results were uncertain, was sometimes unavailing, and sometimes had even given rise to new symptoms. Suggestion, with the aid of electricity, was only used in a few cases of flaccid paralysis.

The prolonged re-education which was formerly thought to be required to convert into a cure the great improvement which followed the active treatment of long-standing cases is unnecessary. If a man with severe hysterical paraplegia of many months' duration is taught to walk in half an hour, and treatment is then discontinued on account of his fatigue, although his gait is stiff and unsteady, he will probably not walk normally until he has undergone re-education for several weeks. If, however, the treatment is continued long enough he will walk with a normal gait, although some time will elapse before he completely regains his strength. In the same way an aphonic case, who stammers on recovering his voice, should not be left until the stammer also is cured. Thirteen cases are described.

A pension of more than 20 or 30 per cent. should never be necessary. A. NINIAN BRUCE.

THE PREVENTION OF RELAPSE OF HYSTERICAL MANI-
(260) **FESTATIONS.** T. A. Ross, *Lancet*, 1918, ii., Oct. 19, p. 516.

THE first essential in the treatment of hysterical manifestations is accurate diagnosis. By no means a small portion of such cases present a gross organic lesion, which gives rise to less prominent symptoms, and which remain uninfluenced by psychical treatment. Apart from these the question arises whether the removal of the obvious symptoms is the same as the "cure" of the patient. Any doctor who listens attentively to the whole of a patient's story, makes a complete clinical examination, is sure the symptoms are functional, and convinces the patient of this will be rewarded by the speedy disappearance of these symptoms. Electricity, hypnotism, and manipulations are unnecessary, and in the end most of them are harmful.

The removal of hysterical symptoms does not mean cure, because that which underlay the hysterical manifestation has not yet been touched. Two undesirable happenings may ensue: either (*a*) the patient may begin, or continue, to complain of other symptoms, such as headache, or (*b*) during some time of emotional stress, such as an air raid in London, the symptoms may reappear. If he thinks the disease has returned because he was not cured, the want of confidence may prolong the reaction indefinitely. To prevent relapse the man must be convinced that it was he himself who worked the "cure." If electricity, &c., has been used, then he is certain to believe it was the "agent" which effected the

cure. If all the medical officer did was to tell him he could walk, and he thereupon did so, he can reasonably expect to repeat the cure by himself if necessary. A better way to prevent relapses is to find out why the patient ever had an hysterical symptom at all. There is something in hysteria besides the symptoms. The individual is out of harmony with his environment, and inquiry will show that the mal-adaptation is psychical. Usually the fear needs only discussion to be dissipated. If not, psycho-analysis may safely be tried. Once this is adjusted emotional reactions are no longer met by the feeble defence of an hysterical symptom.

A. NINIAN BRUCE.

VALUE OF EXCESS OF GLUCOSE IN THE CEREBRO-SPINAL
(261) **FLUID IN CONCUSSION. (Valeur de l'hyperglycosie du liquide céphalo-rachidien des commotionnés de guerre.)**
W. MESTREZAT, *Compt. rend. Soc. de Biol.*, 1918, lxxxi., p. 505.

MESTREZAT alludes to Weil's recent paper on this subject and records his own observations on 50 cases of concussion at the front. In recent cases, or more strictly speaking, those in which the lesions are still active, excess of glucose is not always present in the cerebro-spinal fluid. Out of 15 cases of pure concussion without any obvious wounds, dating from a few days to a few months, excess of cerebro-spinal glucose was found in only 4. The same was found in 9 out of 24 cases of concussion associated with superficial wounds of the scalp. In several cases the excess of glucose was only slight. The cases in which the glucose was normal did not differ clinically from those in which it was in excess.

Examination of the cerebro-spinal fluid in cases of emotion showed that excess of glucose was quite as frequent as in well-marked concussion. Increase in the spinal glucose occurs under the most varied circumstances. The mere apprehension of a surgical operation may cause an increase of the glucose in an apparently normal subject, and an infection or intoxication of any severity may have the same effect. In recent cases, therefore, owing to the readiness with which an excess of glucose develops in the spinal fluid, too much importance cannot be attached to this phenomenon, and the presence of an excess of albumin is of much greater value. In old cases, on the other hand, which seem to have been those which Weil mainly had in view, excess of glucose is practically constant and is of all the more value as at this stage excess of albumin is sometimes absent.

J. D. ROLLESTON.

HYPERGLYCORACHY IN CASES OF SHELL SHOCK. (L'hyperglycorachie des commotionnés de guerre.) MATHIEU-PIERRE WEIL, *Compt. rend. Soc. de Biol.*, 1918, lxxxi., 13 Avril, p. 367.
(262)

IN cases of shell shock or of burial by a fall of earth, &c., examination of the sugar content of the cerebro-spinal fluid may be of diagnostic value. It should be made as soon as possible after the onset of the functional nervous symptoms. For, if there be any meningeal hæmorrhage or congestion, hyperglycorachy will be present, but will later disappear as the organic lesions subside. In many cases of tremors, paraplegia, stammering, &c., following shell shock, hyperglycorachy has been found: in others it has been absent. The first group are truly organic, the second are not. In all doubtful cases the finding of hyperglycorachy proves the organic nature of the lesion. (Notes of cases of the two groups mentioned are given.) LEONARD J. KIDD.

MUTISM IN THE SOLDIER AND ITS TREATMENT. COLIN M'DOWALL, *Journ. Ment. Sci.*, 1918, Jan., p. 54.
(263)

MUTISM, as seen in soldiers, is due to various causes, but all of an emotional character, and when speechlessness is produced it is prolonged by the inability of the man to overcome an inhibition, and thus regain the control of a voluntary mechanism which he does not understand. Ignorance, and often indifference, prolongs the trouble. The condition of the respiratory apparatus is of most importance. In a typical case the man cannot hold his breath for more than twelve or fifteen seconds, and cannot take a deep breath or blow out a match a yard away. These respiratory troubles are not present in cases in which emotion could not be assigned as a causal factor. He may also be unable to cough, whistle, arrange the lips correctly, strike the tongue with the teeth to produce dentals, or put out the tongue—the latter a suspicious indication of a not straightforward case. On recovery all have a hesitation in speech, and an absence of this impediment is suspicious. Mutism may recur after weeks or months, and when relapses occur, or suitable treatment proves unsuccessful, the whole mental field should be reviewed and the sources of irritation removed.

Mutism may arise in the field, in hospital, and in the home forces. Several illustrative cases are given.

Mutism may be combined with deafness which corresponds to functional anæsthesia, though it may be engrafted on a passing organic condition—labyrinthine concussion. Hearing returns before speech.

The author's treatment is as follows:—

Mutism.—The patient is asked to take a long breath and hold it—inability to inhale a cigarette demonstrates to him that he is

incapable of holding his breath. Respiratory exercise is begun, and the most important point is to obtain a good volume of breath on expiration. He is asked to blow out a match at increasing distances, to say "Ah!" to sigh the sound "ow" and the sound "ov." Three long breaths and three sighs, with the correct mouth formation, produce the sentence, "How are you?" Once deep breathing is established a sudden squeeze of the abdominal wall will produce phonation. As soon as the man can whisper sufficiently loud to be heard by others a third person is brought in to show the man he can now be understood. Repeat daily, and generally the man talks by the third day.

Deafness.—The patient sits in a chair and holds a mirror. The physician stands behind and tells the man to look at the doctor's eyes reflected in the mirror. After an interval a sudden noise is made without any movement on the part of the observer, the patient will blink, and the mirror tells him he has moved his eyelids and is a proof he can hear. Common sense does the rest.

Lip reading and the deaf and dumb alphabet should never be allowed. H. DE M. ALEXANDER.

ETHERISATION IN MUTISM, DYSPHONIA, AND TACHYPNŒA OF HYSTERICAL NATURE. (L'eterizzazione nel mutismo, nella disfonia, e nella tachipnea di natura isterica.) E. TROCELLO, *Policlinico*, 1917, xxiv., Sez. Prat., p. 1005.

(264)

IN 1916 the Laryngological School of Naples published several successful results obtained by etherisation in cases of hysterical mutism and aphonia, although Massei admitted that good results were not invariable. Fazio found that etherisation was more successful in cases of mutism than of dysphonia. On the other hand, Professor Agostini, director of the military neurological centre at Perugia, stated that among the numerous cases of mutism, aphonia, or deafness of hysterical nature in soldiers in which he had employed narcosis, he had met with only one complete success, and in another case he had succeeded in converting mutism into aphonia. Trocello records a case of mutism and tachypnœa in a woman which was cured by light etherisation, and a case of dysphonia in a soldier in which this method had no effect beyond showing that dysphonia was not simulated. J. D. ROLLESTON.

DISORDERS OF VOICE AND SPEECH IN PSYCHOSES OR PSYCHONEUROSES DUE TO CONCUSSION. (Les altérations de la voix et de la parole dans la psychose ou psychonévrose par contusion.) N. WYROUBOW, *Rev. Neurol.*, 1916, xxiii., Nov.-Dec., p. 312.

(265)

DISORDERS of voice and speech are a constant phenomenon in psychoses or psychoneuroses following concussion. As a rule these

disorders are combined with very marked disorders of the auditory apparatus. In a case of mutism, the hearing improves a little before or at the same time as the speech returns. There are three fundamental groups of speech disorder: (1) mutism; (2) hesitant speech; (3) whispering.

Whereas deafness always occurs immediately after the concussion, mutism may develop at any time.

Although stammering and whispering may come on immediately following the concussion, they usually supervene on a period of mutism. Illustrative cases are reported.

D. K. HENDERSON.

TWO CASES OF EMOTIONAL PSYCHONEUROSES. (Deux cas de psycho-névrose emotrive.) MAURICE DE FLEURY, *Bull. de l'Acad. de Méd.*, 1918, lxxix., p. 157.
(266)

DE FLEURY thinks that the emotional syndrome described by Dupré is a true morbid entity which should take a place in nosology among the psychoneuroses, side by side with hysteria and neurasthenia, from which it differs essentially. A knowledge of it is essential to the clinician, and still more so the medical jurist, as without it only vague conclusions can be submitted to the law courts or the military authorities.

These cases which de Fleury proposes to describe by the name of Dupré's disease, have hitherto been denominated hysteria, neurasthenia, or traumatic neuroses. During the last twenty-eight months de Fleury has seen examples daily of this condition at the psychiatric centre of Val de Grâce, through which pass 4,200 patients yearly. He records two cases in husband and wife, in which the neurosis was hereditary and constitutional in the husband and acquired in the wife. J. D. ROLLESTON.

CONCUSSION SYNDROMES SIMULATING ORGANIC AFFECTIONS OF THE CENTRAL NERVOUS SYSTEM. A. PITRES and L. MARCHAND, *Rev. Neurol.*, 1916, xxiii., Nov.-Dec., p. 298.
(267)

TWO groups of cases can be differentiated—(1) those depending on the nervous state of the patient (traumatic psycho-neuroses); (2) those due to an organic change in the central nervous system. This latter group is the only one considered in this paper. The lesions in this second group may be either local or diffuse. Guillain and Dupouy have described examples of concussion syndromes resembling multiple sclerosis, Parkinson's disease, meningitis, or cerebellar syndromes. The authors have seen cases of pseudo-tabes and pseudo-general paralysis following concussion.

In the present communication five interesting cases are reported. The first case, three days after having been concussed

by a shell explosion, showed a meningitic syndrome with ptosis, internal strabismus, and a state of mental confusion; the cerebro-spinal fluid was blood-stained. For ten months he was in a state of semi-stupor, then a complete stupor supervened, but at the end of fourteen months all nervous and mental symptoms, except a functional paresis of the lower limbs, had disappeared.

The second case showed a pseudo-general paralytic syndrome; the third a cerebellar syndrome; the fourth resembled a case of multiple sclerosis; the fifth a case of pseudo-tabes.

D. K. HENDERSON.

KERNIG'S SIGN IN THE PSYCHONEUROSES OF COMBATANTS
(268) **AND ITS DIAGNOSTIC VALUE IN SCIATICA. (Il sintoma di Kernig nelle psichonevrosi dei combatenti ed il suo diagnostico valore nell' ischialgia.)** N. PENDE, *Riv. di Patol. nerv. e ment.*, 1918, xxiii., p. 9.

PENDE records four cases of various forms of psychoneuroses in soldiers to prove that Kernig's phenomenon may be present as a sign of a neurosis independently of the existence of any other sign of irritation of the meninges or sensory spinal roots. He attributes the phenomenon to an elevation of spinal tonus associated with a diminution of activity of the controlling cortical centres.

Many other phenomena seen in the traumatic neuroses of war illustrate the readiness with which manifestations of hypertonus of the skeletal muscles or viscera may develop in soldiers, *e.g.*, acrotonus and camptocormia, as well as other phenomena due to deficient control of the higher cerebral centres over the lower bulbo-spinal centres, and to the increased reflectivity of the latter.

J. D. ROLLESTON.

TETANUS.

FIFTH ANALYSIS OF CASES OF TETANUS TREATED IN
(269) **HOME MILITARY HOSPITALS during part of December 1916, all January and February and part of March 1917.** Sir DAVID BRUCE, *Lancet*, 1917, ii., Dec. 22, p. 925 (Illustr.).

IN the 100 cases of tetanus under review the mortality was only 19 per cent.

The incubation period tends to become longer, due to the prophylactic injection. Hence there are only 10 cases reported with an incubation of 10 days or under.

Only 14 cases are reported to have received secondary prophylactic injections of antitetanic serum in home hospitals.

In regard to the therapeutic effect of antitoxic serum the evidence is still inconclusive. (*Cf. Review*, 1918, xvi., p. 118.)

A. NINIAN BRUCE.

PSYCHIATRY.

MENTAL DISEASE IN THE FIELD. M. A. HARRINGTON, *Mental* (270) *Hygiene*, 1918, July, p. 407.

THE author served for one year as a regimental medical officer with the B.E.F. in France. He has made a review of the principal types of mental cases met with, and has made an investigation of the causes to which they appeared to be due. The cases are divided into three groups:—

1. Mental and nervous ailments existing at the time when the men suffering from them were passed as fit for service.
2. Cases of maladjustment to routine army life.
3. Mental disorders brought on by the strain of actual warfare.

Among the first group was a case of cerebral syphilis with hemiplegia, which existed when the man was passed as fit. There were many cases of mental defect and dementia præcox.

In the second group the lack of ability of the individual to adjust himself shows itself both in regard to obeying commands, and in mixing with one's comrades.

In the third group of cases resulting from war strain, the important exciting cause is the fear mechanism. Here the first factor is the constitution of the individual, the second factor is fatigue and ill-health, and a third factor is the depression resulting from the monotony and discomfort of life at the front. Another important factor is the soldier's wish to be ill.

All grades of malingering have been seen from the shameless liar to the man who has come to believe in the seriousness of his illness.

D. K. HENDERSON.

A SURVEY OF WAR NEURO-PSYCHIATRY. C. S. READ, *Mental* (271) *Hygiene*, 1918, July, p. 359.

THE author gives a general review of the neuroses and psychoses met with in war time, and of some of the current literature. In the treatment of the neuroses suggestion, hypnotism, persuasion, and psycho-analysis all have their place, but the author feels that the analytic method is by far the most valuable. The term neurasthenia is used much too loosely, and the author has only met with one or two cases that could be properly so-called. Hysteria, stupor, and mental puerilism are all briefly discussed.

In regard to the psychoses, certain etiological factors are discussed. Climate, acute illnesses, traumata, are all contributory agents, but the part played by exhaustion is not as yet quite clear.

"Intense physical exhaustion alone can produce no psychosis." Only a comparatively small percentage of cases are due to alcohol. Alcohol is a side issue, it is often taken simply to drown a mental conflict, and is rather the result than the cause of a mental breakdown. Mental deficiency, confusional states, dementia-præcox, depression, and general paralysis are all briefly considered.

D. K. HENDERSON.

CARE AND DISPOSITION OF THE MILITARY INSANE. PEARCE (272) BAILEY, *Mental Hygiene*, 1918, July, p. 345.

THE problem was approached in the following ways:—

1. Elimination at the source.
2. Care and treatment in military hospitals.
3. Care and treatment in civil hospitals.
4. Evacuation: Army regulations.

From the beginning of mobilisation recruits were examined for nervous and mental disorders for the most part by men who had had considerable civil experience in neurology and psychiatry. Out of the first 13,481 discharges, 83·7 per cent. were cases which were apt at some time or other to require custodial care, and included cases of mental defect, epilepsy, dementia præcox, and general paralysis.

All cantonments were provided with neuro-psychiatric hospital units especially designed and equipped for nervous and mental patients. In addition, more permanent establishments were provided in the centres where there was a dense military population. The detailed arrangement and organisation of these units is explained in the text, and by plans.

At the beginning of mobilisation the Federal Government arranged with the authorities in the different States to take care of recruits who had been insane prior to enlistment, or in whom it was not an incident to service.

A pronounced psychopathic constitution and military service are antagonistic. Psychoneurotics who might render excellent service in a civil capacity become incapacitated by the change in their habits of living, however patriotically they may have sought military service. The army fares better without them.

D. K. HENDERSON.

MENTAL PUERILISMUS IN A CONCUSSION PSYCHOSIS. (Puérilisme mental au cours d'une psychose post-commotionnelle.) (273) R. CHARON and G. HALBERSTADT, *Rev. Neurol.*, 1916, xxiii., Nov.-Dec., p. 316.

DUPRÉ, in 1903, described a special psychopathic syndrome to which he gave the name of puerilismus, and which he defined as a mental regression to the infantile state.

The case reported occurred in a soldier, following an emotional shock due to a shell explosion. The patient was 21 years old, and came from an insane stock. He had been a normal child, but at the age of 14 years he began to have difficulty with his studies, and about the same time he started to have fits, which occurred during a period of two years. In July 1916, following a shell explosion, he began to show mental symptoms. On examination he was drowsy, repeated the same words over and over again, and suffered from hallucinations. He was in poor physical condition, had difficulty in walking without assistance, had exaggerated patellar reflexes, and pains in his head and limbs.

Gradually his drowsy state disappeared, and to it succeeded the infantile stage. He played and gamboled like a horse, he made paper boats, he smiled and laughed like a child, he spoke in diminutives, referred to himself as "me," and frequently said: "Mamma says."

The authors consider the disorder as in the nature of an hysterical reaction. D. K. HENDERSON.

THE WAR AND THE BURDEN OF INSANITY. JOHN KEAY, (274) *Journ. Ment. Sci.*, 1918, Oct., p. 305.

IN this interesting Presidential Address delivered at the annual meeting of the Medico-Psychological Association, 1918, the author refers to the many political, municipal, educational, reconstructive, and medical problems which have been made prominent as the result of the war. H. DE M. ALEXANDER.

THE PSYCHONEUROTIC TEMPERAMENT AND ITS REACTIONS (275) **TO MILITARY SERVICE.** E. FRYER BALLARD, *Journ. Ment. Sci.*, 1918, Oct., p. 365.

THE psychoneurotic temperament includes the temperaments associated with hysteria, psychasthenia, and epilepsy. The psychoneurotic symptoms (and the indications for treatment) as they exist in civil life and in their reaction to military service are described. In this group there is hyperæsthesia, and a tendency to excessive reaction to external stimuli.

The temperaments associated with paranoia, manic-depressive insanity, and dementia præcox constitute a second group in which hyperæsthesia is absent—this group is not described in the paper.

H. DE M. ALEXANDER.

GENERAL.

A CASE OF MALARIA WITH VIOLENT MENINGEAL RE-
(276) **ACTION SIMULATING CEREBRO-SPINAL MENINGITIS. (Un cas de paludisme avec réaction méningée violente, simulant la méningite cérébro-spinale.)** E. DE MASSARY and TOCKMANN, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1917, 3 sér., xli., p. 1195.

A SOLDIER, aged 20, was admitted to hospital with symptoms of meningitis. The cerebro-spinal fluid on lumbar puncture was under hypertension, but quite clear, and showed a slight increase of glucose and moderate lymphocytosis. Subsequent lumbar punctures showed a similar result. The spleen was considerably enlarged, but examination of the blood was negative, probably owing to the fact that the patient had recently been taking quinine. Under further quinine treatment the meningeal symptoms subsided. A subsequent examination showed the presence of hæmatozoa in the blood. J. D. ROLLESTON.

HEMIPLEGIA IN MALARIA. (L'hémiplégie paludéene.) A. LÉRI,
(277) *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, 3 sér., xlii., p. 210.

LÉRI has recently observed five cases of hemiplegia in soldiers in whom no etiological factor could be discovered except malaria. Four of the patients were men, aged from 21 to 27, and one was 48; none had any history or sign of syphilis, and the Wassermann reaction was negative in the blood of all. The probable reason why hemiplegia does not appear to be more frequent after malaria is that it assumes special clinical features, and because to a certain extent, strange as it may seem in the case of hemiplegia, it is not obvious at first sight.

Léri's cases show that hemiplegia may occur at any period of the malarial infection. In the first case it set in during the first attack, in the four others the patient had been subject to malaria for several years, or even from childhood.

All the cases presented one feature in common, viz., the hemiplegia was slight, incomplete, unequal in the two limbs and in the face, in none was there a sudden onset, and their course was more or less retrogressive.

Three of the patients had aortitis, and it is probable that in these cases the hemiplegia was due to embolism. In the other two cases it was probably due to thrombosis from cerebral arteritis. The transitory aphasia in one case, the slight sensory disturbances in three others, with a very early tendency to exaggeration of the reflexes, as well as the irregularity and inequality of the motor disorders, pointed to a probable lesion of the cerebral cortex.

The vascular lesions both in the aorta and the cerebral artery appeared to be slight, superficial, and probably transitory.

J. D. ROLLESTON.

THE CEREBRO-SPINAL FLUID IN DIPHTHERITIC PARALYSIS.

(278) **(Le liquide céphalo-rachidien dans les paralysies diphtériques.)** LORTAT-JACOB and G. L. HALLEZ, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1917, 3 sér., xli., p. 1259.

A RECORD of two cases in soldiers.

The first was that of a man with incomplete diphtheritic paraplegia, *i.e.*, with loss of the knee jerks, ankle jerks, and medio-plantar reflexes, but with preservation of muscular power. The cerebro-spinal fluid showed a definite excess of albumin but no appreciable lymphocytosis.

In the second case, which was one of generalised diphtheritic paralysis following palatal palsy, the cerebro-spinal fluid showed hypertension, excess of albumin and lymphocytosis.

J. D. ROLLESTON.

DIPHTHERITIC PARALYSIS IN THE FORM OF PSEUDO-TABES

(279) **WITH MENINGEAL REACTION. (Paralysié diphtérique à forme de pseudo-tabes avec réaction méningée.)** R. OPPENHEIM and G. L. HALLEZ, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1917, 3 sér., xli., pp. 863-865.

A SOLDIER, aged 47, developed diphtheritic paralysis of a pseudo-tabetic character after a severe attack of diphtheria. Lumbar puncture performed nearly three months after the onset of the attack of diphtheria, and two months after the appearance of the paralysis, showed a well-marked lymphocytosis and considerable excess of albumin. Similar results were obtained from lumbar puncture performed a month later. After the cases of Chauffard and Le Conte (*v. Review*, 1916, xiv., p. 76), and Ravaut and Krolunitzky (*ibid.*, p. 475), this case shows that meningeal reactions are not exceptional in diphtheritic paralysis, though they are far from being the rule. J. D. ROLLESTON.

OCULO-CEREBELLAR SYNDROME AND ALTERNATE HEMI-

(280) **PLEGIA FROM A PROBABLY GUMMATOUS TUMOUR OF A POSTERIOR CORPUS QUADRIGEMINUM. (Sindrome oculo-cerebellare ed emiparesi alterna da tumore probabilmente gommoso di una eminenza quadrigemina posterior.)** A. SALMON, *Riv. de Patol. nerv. e ment.*, 1917, xxii., p. 505.

A SOLDIER who had contracted syphilis three years previously was suddenly seized with headache and vomiting, which improved under mercurial treatment. A few days later he had a sudden

attack of giddiness with diplopia and vomiting, and the following day he suddenly lost consciousness and developed right hemiparesis and paresis of the right external rectus. On examination a few days later he showed the following signs, which are still present, though subsiding under mercurial treatment:—(1) Paralysis of the left superior oblique. (2) Ataxia of the cerebellar type, with asynergy most marked in the limbs of the right side. (3) Nystagmus.

The clinical picture was thus typical of a tumour of the posterior corpora quadrigemina. It is in this position that the pathetic nerve is in close association with the superior cerebellar peduncles, with Wernekinck's commissure and with the posterior longitudinal bundle, hence the association of paralysis of the pathetic with ataxia of the cerebellar type and nystagmus.

The tumour was probably syphilitic, owing to the history, a positive Wassermann, and improvement under mercurial treatment. J. D. ROLLESTON.

THE GLUTEAL REFLEX IN SCIATICA. (Il riflesso gluteo nella sciatica.) G. VIDONI, *Riv. di Neuropat., Psiciatr. ed Elettroter.*, 1918, xi., p. 129.

(281)

DURING the last few years Vidoni has examined the gluteal reflex in numerous cases of sciatica in military hospitals and frequently found it exaggerated. The value of the phenomenon is confirmed by its frequently being accompanied by changes in the tendo Achillis reflex, with Lasègue's and Neri's signs, and the presence of Vàlleix's points. The gluteal reflex, which must not be confused with the contraction caused by stimulation of the skin of the gluteal region, consists in contraction of the gluteus maximus obtained by percussing the middle and lower third of the margin of the sacrum after placing the patient in the prone position with the buttocks relaxed. J. D. ROLLESTON.

DERCUM'S DISEASE FOLLOWING WAR SERVICE (WITH BIOPSY OF SOME OF THE TUMOURS). (Morbo di Dercum in seguito a vita di guerra (con biopsia di qualche tumore).) G. BOSCHI, *Riv. di Patol. nerv. e ment.*, 1918, xxiii., p. 161.

(282)

A CASE of Dercum's disease, which developed after a few months' service at the front, is attributed by Boschi to disturbance of the glands of internal secretion, especially the pituitary, resulting from the hardships of war service. X-ray examination showed enlargement of the pituitary, which accounted for the patient's adiposity, headache, somnolence, hypothermia, anaphrodisia, and asthenia. Some degree of dysthyroidism was manifested by

enlargement of the thyroid, hyperidrosis and slight exophthalmos. Biopsy of two of the fatty tumours showed that their structure was the same as that of the ordinary fatty subcutaneous areolar tissue. The membrane of the lipoma was merely a thickening of this tissue. The adipose tissue consisted of neutral fats, and there was a scarcity of nerve fibres. J. D. ROLLESTON.

DOUBLE FACIAL PARALYSIS OF TRAUMATIC ORIGIN. G. L. (283) HALLEY, *Rev. de Laryngol.*, 1918, Jan.

THE writer points out that this condition is very rare indeed. Only six cases have hitherto been recorded. The writer adds two cases which came under his care during the war.

Case I.—Double total facial paralysis of peripheral type of six weeks' duration. Paralysis absolute on left side; on the right there is slight movement on attempting to close the eye. Face characteristic, mask-like, absence of expression, and wrinkles. Dribbling of saliva, speech almost incomprehensible. Eating and drinking difficult. Reaction of degeneration on both sides. Injury caused by head of patient being caught and squeezed between a cart and a wall. Bleeding from left ear. Face swollen and bruised for several days. Lesion attributed to transverse fracture of bone, although both eighth nerves were intact.

Case II.—Soldier blown up by large shell at Donaumont in October 1916. Immediate loss of consciousness followed by loss of memory. Sent down from dressing station labelled "no external lesions, facial diplegia, bleeding from both ears and from nose, slight left mydriasis." During first few days patient again relapsed into coma, and on regaining consciousness complained of intense nausea and vertigo. Totally deaf in the left ear, almost totally deaf in the right. Developed double otorrhœa. On examination had typical double facial paralysis. No sign of ocular paralysis, nor alteration of vision. Left pupil slightly larger than right. No nystagmus. No trouble with deglutition. Movements of palate normal. Loss of taste in the anterior two-thirds of the tongue. Reaction of degeneration on both sides. Examination of ears showed right drum cicatrised. Left drum retracted. Hearing almost completely lost. Diagnosis: Commotio without lesion of vestibular tracts.

Examination, September 1917. Considerable improvement. Can shut eyes now. Reaction to faradism returned.

The lesion was probably peripheral, and localised in the aqueduct of Fallopius. As the sense of taste was affected, the lesion was probably in the tympanic part of the facial nerve. No other nerves were involved. J. K. MILNE DICKIE.

PARALYSIS OF THE LAST FOUR CRANIAL NERVES. (Con-
(284) **tribution à l'étude de la paralysie des quatre dernières paires craniennes.)** R. HOCHARD, *Thèses de Paris*, 1917-18, No. 86.

PARALYSIS of the last four cranial nerves may arise as the result of trauma or glandular enlargement of tuberculous or syphilitic origin. The syndrome has become more frequent since the war, and since a more systematic study has been made of the symptoms attributable to paralyses of each of these nerves. The prognosis of these multiple paralyses should be guarded, except in the case of syphilis, as the only lines on which improvement occurs are those in which an extensive specific treatment has been carried out. Paralysis of the last four cranial nerves may occur by itself, or in association with paralyses of other cranial nerves. The cause of these associated paralyses is practically always peripheral, when they are unilateral. The thesis contains the histories of two cases in a wounded soldier and syphilitic woman respectively. J. D. ROLLESTON.

MULTIPLE PARALYSIS OF CRANIAL NERVES FROM A BOMB
(285) **EXPLOSION WITHOUT EXTERNAL LESIONS. (Paralisi multiple dei nervi cranici da scoppio da granata, senza lesione externi.)** C. PASTINE, *Riv. di Patol. nerv. e ment.*, 1918, xxxiii., p. 1.

A SOLDIER, aged 23, as the result of the explosion of a bomb close at hand, developed absolute bilateral anosmia, considerable diminution of vision (without obvious ophthalmoscopic changes), almost complete external and internal ophthalmoplegia on the right, anæsthesia and hypæsthesia in the region of the 5th nerve, facial paralysis of a peripheral type, complete deafness on the left side, disturbances of static and dynamic equilibrium, and vertigo of an organic character. The following cranial nerves were thus affected: the 1st on both sides, the 2nd, 3rd, and 4th on the right, and the 5th, 7th, and 8th (in its two branches) on the left. Commotion appears to have been the only cause determining the lesions, as the patient did not present any external wound, or any physical trauma apart from the fall to the ground at the moment of loss of consciousness.

In all probability the lesions consisted of small multiple and diffuse cerebral hæmorrhages corresponding to the nuclei of the various cranial nerves at the moment of commotion. The onset of the lesion was sudden, but the ophthalmoplegia did not become complete for some days.

The tendency to progressive improvement which has been noted in organic nervous affections arising under similar circumstances was not very pronounced in the present case. After about 1½ years there was still persistence of complete bilateral

anosmia, external and internal ophthalmoplegia, facial paralysis, sensory disturbances in the region of the trigeminus, and complete deafness. On the other hand, the vertigo and disturbances of equilibrium and gait had considerably improved.

J. D. ROLLESTON.

NEURO-SEXOLOGICAL OBSERVATIONS AT THE FRONT. (Neuro-
(286) **sexologische Beobachtungen in der Front.)** LISSMAN, *Münch. Med. Woch.*, 1918, lxv., p. 295.

THE paper is based on the writer's three years' experience as medical officer to a Landwehr battalion, which had almost constantly been kept in the front line exposed to mines and artillery fire, but without any fighting on a considerable scale. Special attention was devoted to the question of the effect of complete sexual abstinence for a long period. The average age of the soldiers was from 30 to 45 years, most of them were married, and accustomed to regular sexual intercourse. Their compulsory chastity was absolutely certain, for the battalion once remained a whole year, and later several months, without leave of absence in a place which had been evacuated by the civil population. Masturbation appears to have been very rare, partly owing to the relatively advanced age of the soldiers, and partly owing to the absence of any privacy. Lissman never observed any case of true or false homo-sexuality such as occurs in ships or prisons, although he does not deny it may have occurred. The psychical impressions and hardships for months at a time were not very severe. Sexual abstinence was tolerated by almost all without important or permanent ill effects. In 1915, when the food was very abundant and they received numerous gifts of food from home, many soldiers presented certain pathological symptoms which might be attributed to temporary abstinence, *e.g.*, frequent pollutions with erotic dreams, or restlessness in sleep, irritability, anxiety, feeling of tension and burning in the testicles, symptoms which were little affected by sedatives, but which always subsided after pollution. The symptoms disappeared completely in 1916 and 1917, when, in the first place, the food supply diminished in quantity and quality and more frequent leave was granted The most interesting result of sexual abstinence was the decline of sexual potency, though this was only temporary. Both officers and men without any neuropathic taint assured Lissman that at the beginning of their leave either erections were completely absent or often very inadequate. In the course of their leave this phenomenon disappeared. As life in the trenches became prolonged and the food deteriorated there was a general complaint of decline in libido amounting to its complete disappearance. This

was doubtless to be explained by psychical and physical exhaustion, which is not overcome by the sexual hormones. The disturbance of potency during, or in the course of leave, occurred more frequently in 1916 and 1917, and lasted longer. Lissman thinks it extremely regrettable from a sexo-neurological standpoint that in the numerous histories of war wounds published it is so extremely rare to find any information as to the effect of wounds or operations on the sexual life and sexual mechanism.

J. D. ROLLESTON.

A CASE OF ABSENCE OF ALL SENSATION. E. D. ROBERTS, *Lancet*, (287) 1918, ii., Oct. 19, p. 515.

THE case described here is that of a Breton sailor, aged 37. He was a well-developed man, mentally sound. As a child he appears to have possessed a slight degree of cutaneous sensibility, and dates his complete loss from an attack of yellow fever at the age of 17. There was complete loss of the sense of touch, pain, temperature, muscular sense, and sense of position; also the sense of taste was absent, smell was practically non-existent. He also seemed without most of the common emotions, and he did not appear to be conscious of hunger or thirst, and had no friends or enemies.

A diagnosis of syringomyelia combined with hysteria is suggested.

A. NINIAN BRUCE.

"MYALGIA": ITS DIAGNOSIS IN FORWARD AREAS. F. B. (288) CHAVASSE, *Brit. Med. Journ.*, 1917, ii., Dec. 22, p. 821.

MYALGIA is a chronic condition, precipitated or exacerbated by cold, damp, and fatigue, affecting groups of muscles, and characterised by muscular stiffness, becoming greater on resting, and less with movement, and by pain, absent at complete rest, and sharp on active contraction and passive hyperextension. It is to be distinguished from neuralgia by the facts that in neuralgia the pain is aggravated when the patient is warm and motionless, and that in neuralgia hyperæsthesia of the skin is commonly present.

A. NINIAN BRUCE.

MEASURING THE MENTAL STRENGTH OF AN ARMY. ROBERT (289) M. YERKES, *Proc. Nat. Acad. of Sciences of U.S.A.*, 1918, iv., Oct., p. 295.

COMMITTEES of the American Psychological Association and the Psychology Committee of the National Research Council prepared between April and August 1917 various psychological methods for the selection and classification of recruits in the Army and Navy, and Major Yerkes was appointed to organise and direct this new branch of the service for the medical department.

On 1st July 1918, 600,000 soldiers had been examined. Of this number slightly more than 0·25 per cent. had been recommended by psychological examiners to psychiatrists for discharge because of mental deficiency, and about 0·5 per cent. had been recommended for assignment to service organisations for development battalions because of mental inferiority.

The aim of the Division of Psychology is to develop a psychological centre in each military training camp, to which all psychological problems of military assignment, training, discipline, *moral*, and intelligence may be referred by officers of the line or staff. Such a centre exists in twenty-five camps, and the service is being extended as rapidly as available personnel permits.

A. NINIAN BRUCE.

THE WAR AND PENSIONS FOR NERVOUS AND MENTAL CASES. (La guerre et les pensions pour maladies mentales et nerveuses.) R. BENON, *Rev. Neurol.*, 1916, xxiii., Nov.-Dec., p. 320.
(290)

THE author points out the absolute necessity in each case of clearly determining whether the war has been the sole determining factor of the disorder, whether it has been the exciting factor, or whether it has simply acted along with other factors, and been merely an aggravating agent. D. K. HENDERSON.

VOCATIONAL REHABILITATION OF SOLDIERS SUFFERING FROM NERVOUS DISEASES. F. H. SEXTON, *Mental Hygiene*, 1918, April, p. 265.
(291)

A REVIEW of what is being done in Canada in the care of fitting discharged soldiers for civil employment. D. K. HENDERSON.

THE RETURNED DISABLED SOLDIERS OF CANADA. WILLIAM L. RUSSELL, *Mental Hygiene*, 1918, April, p. 245.
(292)

SOLDIERS returning to Canada are grouped in one of three divisions. (1) Those for immediate discharge without pension. The men of this class are given three months' pay with allowances, and are discharged. (2) Treatment cases. These men are sent to hospital. (3) Permanently disabled men for whom further treatment would be useless. These are given a pension, such appliances as they need, and training in an occupation if this be necessary. Owing to criticism arising from the commitment of soldiers to the established institutions for the insane, two special hospitals have been started for the treatment of mental cases. The advisability of maintaining military control over returned soldiers until they have been restored to as high a degree of capability as possible, and have been trained in a new occupation whenever this is necessary, is emphasised. D. K. HENDERSON.

Reviews.

AN X-RAY ATLAS OF THE SKULL. A. A. Russell Green, M.B., B.S. (Lond.). Pp. x + 27, with 5 coloured plates and a table showing relations between displacement of shadows and distance of bodies throwing those shadows. 1918. Longmans, Green & Co., London. Pr. 10s. 6d. net.
(293)

The accurate interpretation of skiagrams of the head is a matter of great difficulty, principally on account of the number of the bony landmarks and the way in which they vary according to the point of view from which the skiagram is taken. The author here presents us with a series of diagrams for reference, showing what may be seen or located in the dry skull when radiographed from various angles. The method adopted has been to increase the opacity of certain parts by outlining the sutures with wire, covering structures with tinfoil, injecting the sinuses with a mixture of bismuth and paraffin wax, and by injecting the blood vessels with mercury. These processes have been confined largely to one side of the skull, so that throughout the atlas one-half appears as a diagram, and the remainder as a more or less untouched plate.

The plates have been most beautifully executed, and deserve careful study. They enable the exact localisation of a foreign body in the cranium to be determined with precision. The method of procedure is also described, and it is shown how the distance of a foreign body from the surface is estimated. The atlas should prove of great value as an aid to the correct interpretation of X-ray plates of the skull.

SEALE HAYNE NEUROLOGICAL STUDIES. Edited by Arthur F. Hurst, M.A., M.D 1918, i., July.
(294)

The Seale Hayne Military Hospital was opened on 15th April 1918 for the treatment of soldiers suffering from war neuroses. This series of studies has been published with the object of supplying information concerning the nature, diagnosis, and treatment of these conditions. Sir William Osler, in an introductory note, emphasises the fact that "we are face to face with a new neurology of extraordinary complexity, due directly to the exceptional strain of modern warfare. Our hospitals swarm with cases of aphonia, dumbness, deafness, amnesia, anæsthesia, spasms, tremors, and with the subjects of hitherto unknown or rarely seen inco-ordinations. Two conclusions have been reached—a majority of these manifestations are hysterical, and in skilful hands they are cured promptly."

The first five papers on "Studies on Hysteria" were originally published in the Jan.-Feb. 1918 number of this *Review*. A sixth paper is now added on "Hysterical Romberg's Sign." Romberg's sign is so easy to imitate, that its value in the diagnosis of tabes is almost negligible. It can be voluntarily reproduced by a malingerer, and can result in suggestible patients either from auto- or hetero-suggestion. Two cases are reported in support of the above views.

In another paper on "The Rapid Cure of Hysterical Symptoms in Soldiers," Hurst and Symns state that during the last few months they have come to realise that stammering and tremor, and all the cases they have seen corresponding to Babinski and Froment's description of "reflex contractures," are as amenable to treatment as hysterical mutism, aphonia, and paralysis. "We are now disappointed if complete recovery does not occur within twenty-four hours of commencing treatment, even in cases which have been in other hospitals for over a year." The great secret is to continue working with a case, irrespective of the time taken, until a cure is effected. In long-standing cases it is generally wise to invalid the patient from the service, but a pension of more than 20 or 30 per cent. should never be necessary. The method of treatment now advocated is simple persuasion and re-education, combined with manipulation. A series of twenty-one cases are reported. The cases are all of very striking interest, but one would like to know a little more about them, from the point of view of their personality and disposition. The picture given in these case reports is a purely symptomatic one.

In the concluding paper Hurst discusses reflex contractures, localised tetanus, hysterical contractures and their differentiation.

D. K. HENDERSON.

(295) **THE MODERN TREATMENT OF MENTAL AND NERVOUS DISORDERS.** BERNARD HART, M.D. Manchester University Press; 1918. Longmans, Green & Co., London and New York.

THIS little book is No. XXI. of the Manchester University Lecture series. The lecture has apparently been specially prepared for the general public, and a good common-sense statement is given of modern trends. In discussing the "physiological" and "psychological" conceptions of the origin of mental and nervous disorders, the author steers a middle course, and is of opinion that the causal chain contains both mental and physical factors in every case, although the relative importance of these factors differs greatly in the different types of disorder. Emphasis is laid on the great improvement in psychological methods of treatment, and

the necessity for the establishment of special departments in connection with general hospitals for the treatment of early mental cases is strongly urged. D. K. HENDERSON.

TRENCH FEVER. Report of Commission, Medical Research Committee, (296) American Red Cross. Prepared for publication by Richard P. Strong. Pp. viii+446, illustrated. Printed for the American Red Cross Society at the Oxford University Press, by Frederick Hall, printer to the University. 1918.

THE most important facts which have been demonstrated by the investigations of the Commission are as follows:—(1) Trench fever is a specific, infectious disease. It is not a modified form of typhoid or paratyphoid fever, and is not related, from an etiological standpoint, to these diseases. (2) The organism causing the disease is a resistant filterable virus. (3) The virus causing trench fever is present particularly in the plasma of the blood of trench fever cases, and such plasma will produce the disease on inoculation into healthy individuals. (4) The disease is transmitted naturally by the louse *Pediculus humanus*, Linn., var. *corporis*, and this is the important and common means of transmission. The louse may transmit the disease by its bite alone, the usual mode of infection, or the disease may be produced artificially by scarifying the skin and rubbing in a small amount of the infected louse excrement. (5) A man may be entirely free from lice at the time he develops trench fever, the louse that infected him having left him some time previously as its host, and need only remain upon the individual for a short time in order to infect him. (6) The virus of trench fever is also sometimes present in the urine of trench fever cases, and occasionally in the sputum, and the disease may be produced in man by the introduction of the virus in the urine or sputum through the scarified or otherwise abraded skin. (7) As the urine and sometimes the sputum of trench fever patients are infective, these should be sterilised in order to avoid the possibility of accidental infection from them. (8) To prevent, or limit, the spread of trench fever, greater efforts must be made to keep soldiers in general from infestation with lice.

To obtain these results 103 different human experiments had been carried out in connection with the transmission and cause of trench fever, and the disease had been produced experimentally by different methods in sixty-two instances. This is probably the first time in history that an infectious disease has been studied in such a manner. The experiments are described at length, and the conclusions are argued out with detail and care. The observers who allowed themselves to be made the objects of the experiments

are deserving of the greatest praise, and the results of the Commission's investigations are themselves the best testimony to the value of the work, and the benefit which it has conferred upon humanity.

GYMNASTIC TREATMENT FOR JOINT AND MUSCLE DIS-
(297) **ABILITIES.** H. E. Deane, with Preface by A. Carless and F. W. Mott. Pp. 146, with 26 figs. Henry Frowde and Hodder & Stoughton, London. 1918. Pr. 5s. net.

The author criticises severely the limitations of the usefulness of massage and electricity, particularly because they do not bring the patient's own will into action. The advantages of gymnastic exercises are that they make the man do things himself, exercise his own volition, and put his own motor centres into action. The apparatus required is inexpensive, and consists only of a skipping-rope, Indian clubs, dumb-bells, a beam, a slanting ladder, a sparred plank, parallel bars, wall bars, ropes, and a nautical wheel. Gymnastic treatment is specially indicated in cases with limitation of movement, due to rigid and dense scars in the muscular substance. Restoration of function, and the building-up of the patient's will to work are said to occur more rapidly under this system than any other. The exercises are described clearly, and the illustrations are most helpful. The book is thus well worthy of careful attention.

Obituary.

DR FREDERICK EUSTACE BATTEN.

By the untimely death, after an operation, of Dr F. E. Batten in July, 1918, neurology has lost one of its best exponents and keenest students. His decease at a comparatively early age has cut short the hope of much sound work yet to be accomplished, for his published record is one of indefatigable research in clinical neurology and in neuropathology.

Dr Batten was not on the staff of a general hospital, but his energies found abundant opportunity for expression in his long association with two special hospitals, the National Hospital, Queen Square, and the Hospital for Sick Children, Great Ormond Street. The natural outcome was his devotion to the study more

particularly of such neurological conditions as are to be found alike in children and adults, hence his various papers and contributions on poliomyelitis, the myopathies, hereditary nervous disease, cerebro-spinal meningitis, epidemic encephalitis, &c. In addition, certain rarer conditions such as Tay-Sach's disease, myotonia atrophica, aplasia axialis extra-corticalis congenita, &c., were investigated by him. His name also is associated with early and valuable work on muscle spindles. He contributed largely to various systems of medicine, and was joint author of a fine text-book on the diseases of children.

Dr Batten was catholic in his neurological interests and devoted himself assiduously to the furtherance of his favourite study in any and all of its divisions. He was a constant attender and frequent contributor at the neurological section of the Royal Society of Medicine, and many papers from his pen will be found in their transactions and in those of the old Clinical Society, Pathological Society, Royal Medico-Chirurgical Society, Ophthalmological Society, &c. His work was characterised more by painstaking accuracy in description, clinical or pathological, than by ingenuity or originality of hypothesis, and will remain as abiding testimony to his scientific sincerity and trustworthiness.

As a teacher Dr Batten used his gifts of directness and clarity of exposition to great advantage, and his work in the out- and in-patient departments of his two hospitals was much appreciated by students. He was joint secretary of the Neurological Section at the International Medical Congress of London in 1913, was Dean of the school at the National Hospital, had held various secretaryships of medical societies, and in all these offices his transparent honesty and contagious enthusiasm for his work charmed all who came in contact with him. As a colleague he was loyal, generous, and self-sacrificing.

His position in English neurology was recognised by his being elected a corresponding member of the Philadelphia Neurological Society and of the Société de Neurologie of Paris.

Review
of
Neurology and Psychiatry

Original Articles

THE HISTOLOGY OF DISSEMINATED SCLEROSIS.

By JAMES W. DAWSON, M.D.

WITH A

PRELIMINARY COMMUNICATION

By the late ALEXANDER BRUCE, M.D., LL.D., and JAMES W. DAWSON, M.D.

VI.

CONCLUSION.

THE three divisions of this study have now been completed: in the first an analysis and classification were given of the more important writings on this subject; in the second part the essential features of the histological process were set forth, and an endeavour was made to avoid the needless repetition of examples and details by the selection of such examples as were necessary to a complete view of the subject; and, finally, it was attempted to bring out in order the nature of the questions that come into consideration in a study of the pathological process underlying disseminated sclerosis. In the critical discussion which this involved, it was clear that no general and complete interpretation of the subject could be given, and that imperfectly known factors had to be suggested for the solution of several of the problems. It may have seemed, on the one hand, that difficulties have been suggested where everything was clear: if this be so it is because it was difficult, sufficiently clearly to define the real point at issue; on the other hand, in one or two cases it has been noted that the difficulties are there, undeniably,

but that their importance may easily be overestimated. The tentative nature, therefore, of the attempted explanations on many points, and the fact that no uniform conception of the process can be offered, make it difficult, in these closing pages, to summarise the foregoing study. Nevertheless, it is customary and desirable to formulate certain conclusions, and the extent both of the histological examination and the critical examination of the available literature seems to justify such an attempt. The first group of these conclusions is related to those problems which are far from being completely solved; the second group rests on more definite histological data.

As the initial conclusion, that related to the nature of the pathological process may be selected. Its sequence, as it has presented itself to me in the normal evolution of an area of sclerosis, is distinguished by several stages, which may be briefly stated in terms of their dominant feature: (1) a commencing degeneration of the myelin sheath and a simultaneous reaction of the glia in the immediately peri-vascular tissue; (2) an increasing glia cell proliferation and a commencing fat granule cell formation; (3) the stage of so-called "fat granule cell myelitis"; (4) a commencing glia fibril formation; (5) an advancing and (6) a complete sclerosis. It is possible, and the possibility has been allowed for in the interpretation, that complications, *e.g.*, septic fever, extreme decubitus, etc., may modify the presentation of the picture at any stage. The histological study has given overwhelming evidence that the great majority of the areas in these cases, both in the brain and spinal cord, have arisen on the basis of this evolution through a stage of fat granule cell formation. On the ground, therefore, (1) of the nature of this evolution, (2) that acutely inflamed areas are rarely present, and (3) that in subacute processes the general architecture of the tissue is retained, it is concluded that:

(i) The process underlying disseminated sclerosis is a subacute disseminated encephalo-myelitis, which terminates in disseminated areas of actual and complete sclerosis.

It has been contended, however, by Schmaus, Ziegler, Strümpell, and Müller that there are two forms of disseminated sclerosis: the one, true primary disseminated sclerosis, which develops on the basis of an increasing glia hyperplasia — with developmental

factors as its determining cause; the other, secondary disseminated sclerosis, which develops on the basis of an inflammatory process; and further, that the two forms can be clinically and anatomically distinguished from each other. This point of view is admirably simple, and I admit not only that certain areas in individual cases arise on the basis of an increasing glia hyperplasia—for such in small numbers are present in my cases—but also that, in certain cases of disseminated sclerosis in which the symptoms evolve very gradually, the areas might altogether develop on such a basis—discounting, however, the developmental factor. But when Müller, who is the most strenuous upholder of this position, further contends that disseminated sclerosis, developing on such a basis, is a "comparatively common disease" in contrast to secondary disseminated sclerosis, and further states that the essential histological characteristic of the areas in the latter forms is "areolar," it is at once obvious that this study prevents the acceptance of such a uniform conception of the process—a conception which would rule out each of the nine cases. Müller defends his position by arguments based on clinical and anatomical data, and the objections to his contentions may be put from these two points of view—clinical and anatomical. The question whether this is a position compatible with clinical experience lies outside the scope of this paper, and can be only briefly alluded to. My position is, naturally, determined by the cases that have come under histological observation. In these, two things stand out clearly: the one that the clinical notes, though admittedly meagre, point to a subacute onset of the symptoms, with no apparent immediate cause (see later), to periods of quiescence and betterment followed by relapses, again with subacute onset, and to the circumstance that these symptoms are quite compatible with the variability of the symptoms found in disseminated sclerosis. The second and more decisive fact, however, is related to the character of the areas. On pages 373 to 380 of this *Review* for 1917 have been given Müller's criteria of the anatomical characteristics of the areas of primary and secondary sclerosis: it has also been stated above that the great majority of the areas in these cases develop on the basis of an inflammatory process, in Müller's sense, and that in the end-result they bear all the characteristics ascribed by Müller to areas in primary disseminated sclerosis, *i.e.*, with dense glia meshes in which persistent axis cylinders may frequently be found, and

altogether different from the "areolierte" areas ascribed to secondary disseminated sclerosis. It seems, therefore, justifiable to assume that cases of true disseminated sclerosis clinically have, as their basal histological features, areas of actual sclerosis, which have evolved through a stage of fat granule cell formation, and areas which are in process of a similar evolution.

It might, however, further be contended that areas arising on the basis of an increasing glia hyperplasia and those arising on an inflammatory basis are present in the same case. Müller's explanation of this finding is that, to the primary true disseminated sclerosis, due to developmental factors, a secondary form, due to toxi-infective influences, is superadded. I have already admitted the presence in the same case of areas arising in both ways, and also the presence of "areolierte" areas, and in the foregoing section the possibility that a uniform explanation of the development of these three types of areas can be found has been put forward. In view of the essential importance of the difficulty of accounting for such types of areas, a brief summary of the argument there presented will be given. The essential point in this argument is related to the well-known fact that a common cause, according to the intensity and duration of its action, may produce a very varying picture, and therefore several factors, which cannot be strictly separated, are acting in concert.

It is probable that when the causal agent diffuses through the blood-vessel walls with average concentration and intensity, areas arise on the basis of (1) a primary solution of the myelin—a result of the irritant action of the "noxa"; and (2) a simultaneous glia reaction—the result of the stimulant action of the "noxa," and that such areas pass through stages of fat granule cell formation, glia fibril formation, to a complete sclerosis with very fine, dense glia meshes. On the other hand, if the causal agent be of weaker concentration and intensity and acting over a longer time, its stimulant action on the glia is solely in exercise: areas would then arise on the basis of a gradually increasing glia hyperplasia. The comparative picture presented by the end-result of each could be differentiated only by the possibly more isomorphous character of the resultant sclerosis in the latter case. Further, the "noxa" may be of stronger intensity and its irritant action predominate, so that areas of a more acute myelitic

character arise, in which the rapid degeneration of the myelin sheath is accompanied by a destruction, not a mere swelling, of the axis cylinder. Such areas, followed by a certain amount of secondary degeneration, and later by a reparatory sclerosis, are also found in disseminated sclerosis, but this is not the normal evolution of an area. At the same time it is clear that a varying intensity of the noxa might cause areas to arise, in which the resultant sclerosis shows all transitions from a simple retention of the glia network—the so-called "areolierte" areas of Müller, through areas with a certain but not complete degree of fibril-formation—in which the proliferated glia nuclei are the nodal points of radiating fibrils to areas of complete sclerosis in which the glia meshes are very close. This varying picture, seen best with glia stains, depends, therefore, not on different underlying processes, but more probably on the varying intensity of one causal agent and the varying factors which modify its action in individual cases and at individual times. It is concluded, therefore, that:

(ii) Disseminated sclerosis is probably not due to a developmental process, and there are no sufficient grounds for distinguishing between primary and secondary disseminated sclerosis in the sense used by Ziegler, Strümpell, and Müller.

It is important to observe that this conclusion has been qualified by the addition of the words "in the sense used by Ziegler, Strumpell, and Müller." I differ fundamentally from those writers in their grouping of the forms of disseminated sclerosis into true, primary disseminated sclerosis—a developmental disease, with characteristic clinical and anatomical features —and secondary disseminated sclerosis, one of a group of allied diseases, without such. Yet it is considered that the clinical and anatomical picture of disseminated sclerosis stands out clearly and well-defined, that it is probably due to a specific but unknown morbid agent, and that it is probably quite distinct from other diseases of the central nervous system, which, in virtue of the disseminated distribution of their lesions, call forth clinical symptoms resembling disseminated sclerosis. Two of the chief of such disseminated affections are those due to multiple arteriosclerotic and multiple syphilitic endarteritic processes, in both of which, however, a careful clinical and anatomical examination makes the differential diagnosis possible. Rarer forms are those

due, *e.g.*, to thrombi in the cerebral vessels, formed by malarial parasites, and to multiple tumour-formations, *e.g.*, multiple neuromata of the central nervous system. The most important form, however, is that due to toxi-infective conditions, which may give rise to disseminated areas of myelo-encephalitis. From what has already been said about the varying intensity of the noxa, and from the assumption that when this was stronger in its intensity areas might arise of an acute myelitic type, it may legitimately be assumed that such disseminated areas may arise in immediate relation, *e.g.*, to the acute infective diseases, and produce symptoms impossible to distinguish clinically from disseminated sclerosis except in the acuteness of their onset and their severity. It is further probable that the clinical course of such cases, if they become chronic, would not be characterised by definite remissions and relapses, and, anatomically, the end-result of such areas would be characterised by a reparatory sclerosis or, the opposite extreme, an absence of evidence of glia reaction and the so-called "areolierte" areas of Müller. It seems unlikely that the specific toxi-infective agents of the different acute infective diseases can each produce a clinical and pathological condition so characteristic as that of disseminated sclerosis, while it is conceivable, and we know from experimental and other evidence that it is possible, that the various toxi-infective agents can call forth an acute disseminated myelitis which runs its course and remains stationary. The clinical symptoms would resemble disseminated sclerosis, but the characteristic remissions and relapses would be wanting. The grounds for such a view are based largely upon an increasing knowledge of the selective character of toxins. Several instances of such have been given in an earlier section, and here allusion may be made to progressive lenticular degeneration—a symmetrical degeneration of the lenticular nuclei—which Wilson traces to the selective action of the morbid agent on these collections of grey matter; and also to the secondary neuroses (psychoses) following the various fevers, *e.g.*, pneumonia and typhoid fever, which Kraepelin has differentiated from one another. Analogies can never be conclusive, but they at least mark the possible direction in which we may look for a solution, and allow of the suggestion that a characteristic anatomical and clinical picture is called forth by a specific morbid agent.

It is probable, however, that the significance of acute infectious

diseases, when they occur in the anamnesis in definite time relationship to the onset of symptoms, is that which has been attributed also to chill, trauma, psychical shock, and all the recognised external factors: that they are capable of acting only as exciting factors manifesting or aggravating the condition. In four of the nine cases from which the material of this study has been drawn the symptoms came on without apparent cause, and in the other cases the chill, trauma, shock, influenza, and miscarriage cannot be regarded as in immediate causal relationship. The duration of the series of cases is as follows: fifteen months, four years, five years, in three cases ten years, fifteen years, and seventeen years. Eight of the nine patients were young women, whose ages averaged slightly over twenty years at the time of the first appearance of the symptoms.

The essential points of difference between the standpoint of Zeigler, Strümpell, and Müller and my own are very few, but they are basal. These writers confine true disseminated sclerosis to a disease with a characteristic clinical course, *i.e.*, with remissions and relapses. So far we agree, but this condition has, as its anatomical expression, an increasing glia hyperplasia (for the present the developmental factor at its basis may be left out of account), and from this pathological conception all the nine cases must be excluded. Further, these writers look upon secondary disseminated sclerosis as chiefly due to toxi-infective agents, and these forms have as their anatomical expression "areolierte" areas, and again, from this pathological conception all the nine cases are ruled out. It may be argued that the notes in some of the cases do not justify our looking upon them as cases of true disseminated sclerosis, but if these are omitted, and those only included which sufficiently point to their inclusion in Müller's clinical picture of true disseminated sclerosis, there still remains overwhelming evidence that the great majority of the areas arise on the basis of an inflammatory process, and lead to areas of actual sclerosis in Müller's sense. In five of the nine cases areas in all stages of development were found in both brain and cord; in three, the areas in the cord were mostly of an older date, and those in the brain at all stages; while in one case the spinal cord areas were all of an early type, and those in the brain of a more sclerotic type. It is, therefore, legitimate to assume that the varying picture is dependent upon certain principles which enable

us to recognise different degrees of one process rather than several independent reactions.

It is necessary, at the risk of complicating this argument, to mention one further point. The anatomical expression of a "remission" must naturally be the gradual clearing up of the cell exudation, and a sclerosing of the tissue with a retention of the axis cylinders. The anatomical expression of a relapse is the presence of "early" areas, so that the presence of areas in different stages of development is characteristic of the anatomical picture of disseminated sclerosis. Now it is conceivable that a disseminated myelo-encephalitis due, for example, to the direct toxi-infective agents of the acute infectious diseases might run a slow course—healing slowly, and if death resulted at this stage, the anatomical picture would show some areas actually sclerosed, or at least with no trace of an existing process, and others in which such traces were still left. It is evident that such an anatomical picture would be difficult to separate from that of disseminated sclerosis, and that the long clinical course would simulate a case of disseminated sclerosis with no true remissions. It is still further necessary to refer to cases of so-called "acute multiple sclerosis." Such cases are very difficult to classify: up to a certain point they resemble disseminated sclerosis in virtue of their being disseminated affections of the central nervous system; but the criteria which give its characteristic course to disseminated sclerosis have not had time to evolve. As the pathological data, however, resemble those of a subacute process, with retention of axis cylinders, it might reasonably be admitted that such cases are true disseminated sclerosis, which, from the importance of the position of the earlier areas involved or other causes, have led to an acute course of the disease and death.

I therefore divide disseminated affections of the central nervous system into (1) disseminated sclerosis—a subacute encephalomyelitis, a condition which runs a characteristic course with remissions and relapses, and (2) other disseminated affections. The only member of this group which presents real difficulties in clinical and anatomical diagnosis is that due to acute disseminated myelo-encephalitis. In this case the pathological and clinical concepts of the two diseases pass into each other: the differential diagnosis must rest, clinically, on the further course of the disease, and anatomically on data which differ only in degree.

(iii) It is concluded, therefore, that there is much to favour the view that true disseminated sclerosis is due to a specific morbid agent which calls forth a clearly-defined clinical and anatomical picture: that other disseminated affections of the central nervous system, such as disseminated arterio-sclerotic, syphilitic endarteritic, and acute encephalo-myelitic processes may all produce a symptom-complex very similar to that of disseminated sclerosis, but that they, in their further course, differ from the latter in the characteristic remissions and relapses; and further, that acute infective diseases, trauma, chill, shock, and all known exogenous factors may act as exciting factors in lowering the resistance of the organism, and thus allowing the final determining factor to operate.

The most important question yet remains: What is the nature of this postulated specific morbid agent which is the final and determining factor in the process? It has already been frequently stated that this is quite uncertain, and that there is not sufficient evidence to show whether it is microbial or of the nature of a toxin. There is much in favour of the view that the disease is toxic in origin; the histological evidence, which is far from conclusive, is related to the absence of cell infiltration of the vessel walls, for it is admitted by most writers that areas of degeneration without cell infiltration are more usually due to toxic influences, while infective agents more uniformly call forth an infiltrative form of myelitis. More decisive, however, is the clinical evidence: many of the early symptoms, symptoms which sometimes last for years, are slight motor palsies and transient psychical symptoms, which pass off readily under treatment with faradism or suggestion—such transient symptoms are very suggestive of the persistence in the body of some toxin which exercises its action on the nervous system. The variability of the early symptoms, which has so frequently led to the diagnosis of hysteria, suggests that at this stage areas may be affected by a "nutritional" rather than a structural change. The possibility of dynamic modification of function is now well recognised in diseases of the nervous system, while as yet structural change is slight, and this being so, it is therefore more likely that the agent producing this varying disturbance of function is some form of toxin. The importance of determining the relation of the

so-called Westphal-Strümpell pseudo-sclerosis to disseminated sclerosis is very great, for in this affection the symptoms of disseminated sclerosis are present with negative pathological findings.

If we assume the presence of a toxin as the essential stimulus we must further decide the route of its conveyance to the nervous tissues. The histological evidence in favour of hæmatogenous and lymphogenous spread has been given in a previous chapter: it was there stated that although certain circumstances, such as the frequent marked peri-ventricular sclerosis and recent experimental evidence in favour of the toxicity of the cerebro-spinal fluid, point to a lymphogenous spread, there is no histological evidence to support this view.

(iv) The causal agent is, therefore, probably of the nature of a soluble toxin, and it is conveyed to the nervous tissues probably by the blood channel.

We have still to explain the restriction of the action of this circulating toxin to certain areas. The difficulty of explaining how the degeneration connects itself with special vascular tracts, and avoids others, has led many writers to fall back upon the assumption of developmental defects or minimal tissue injuries, which form "loci minoris resistentiæ" where the circulating toxin might settle. In the histological study it has been pointed out that it is not a question of one central vessel, a portion of the longitudinal course of which is affected, but rather of a blood-vessel stem with its terminal branches or a division of its branches. It is probable that the circulating toxin escapes from the capillaries and transition vessels in the sense that the area of supply of the ramifications is affected. It has been suggested that the toxin may have a chemiotactic influence on certain portions of brain tissue, but it is difficult to conceive of such an irregularly and widely distributed chemiotaxis unrelated to definite functional nuclei or fibre-systems. The toxin may, however, conceivably select certain areas of blood supply, for it is known experimentally that certain substances can influence the blood supply of regional parts of the brain, and Meynert has suggested that this may be the explanation of the maniac-depressive psychoses, which he looks upon as neuroses of the vaso-motor system limited to certain cerebral areas. The recent

experiments of Orr and Rows also point to the possibility of a localised affection of the vaso-motor system due to the action of toxins on the sympathetic nerves. In the present state of our knowledge, as it is impossible to determine the final causal agent, it is equally impossible to determine the factor which allows of its diffusion through certain terminal areas of the ramification of a blood-vessel.

(v) It is suggested, however, that the restriction and distribution of the pathological process is in some way related to the selective action of the toxin on certain areas of the blood supply, or that unknown factors determine an irregularly distributed paralytic dilatation, with an increased filtration through the vessel walls.

It is, further, necessary to explain not only the presence of this morbid agent in the blood-vessels, the restriction and distribution of its effect, but also its continued presence in the body through a series of years, during which its action is apparently exhausted, remains quiescent, and again breaks out. Clinically the remissions and relapses are the outcome of this peculiar action, and anatomically it finds expression in the areas in different stages of development in the same cases. Allowing that it is microbial in origin, we may find an analogy in cerebro-spinal syphilis, in which there are also the same exacerbations and remissions. If we admit, rather, its toxic origin, the closest analogy is probably found in pernicious anæmia, where it is thought likely that both the hæmolysis and the cord changes are due to the same toxin. The source of the toxin is here also uncertain, but the fact that gastro-intestinal disturbances are so common in this disease lends support to the view that it is of intestinal origin, and that its intermittent evolution or its insufficient elimination lead to the remissions. Such analogies can again not be final, and in the latter case the parallel breaks down from its incompleteness. There is no known association of disseminated sclerosis with any changes in the gastro-intestinal tract or elsewhere: the connection, if any, with glands of internal secretion has never been worked out; the general metabolic changes occurring in the body have not been investigated; and the cerebro-spinal fluid is known not to exhibit the cytological and bio-chemical changes which are so marked in para-syphilitic

affections. The investigations of the cerebro-spinal fluid have as yet been very incomplete, and the evidence which tends to prove that it is toxic does not decide whether it is so as a result of the process or whether this toxicity is its cause.

(vi) The remissions and relapses, therefore, necessitate the assumption of the latent presence of the morbid agent in the body, or, if this is an autogenous toxin, either its intermittent evolution, or its accumulation from deficient elimination.

Variability of the Symptoms.—It is a little difficult to explain the mechanism of the fleeting early palsies and psychical symptoms. The possibility of an early dynamic modification of function has already been noted, but the period now referred to is one when presumably structural changes have set in. I consider that the involvement of the psychic areas at such a stage is to be explained in the same way as the affection of the motor areas. In such cases it is possible that the motor area or tract involvement is insignificant, for, if it were the essential lesion, the recovery could never be so rapid. Every movement requires the integrity of a large number of association areas, but we realise this only when we watch a child trying to walk, or a paralysed person trying to move. It is possible, therefore, that in these transient palsies the disturbance is in one of the association paths: with each recurrence of an area in such paths, motor images and memories would be progressively blotted out till the motor area is so cut off from its usual associations that progressive paralysis occurs. So long as an axis cylinder remains, a stimulus is capable of passing. The destruction of the myelin sheath probably results in the increase of the resistance to the passage of any stimulus. If a sufficient number of association areas can be linked up around a particular function, in order to elicit from it a discharge sufficient to overcome this resistance, then remission is possible. By stimulation through suggestion, faradisation, etc., these remissions may be brought about with a success dependent upon the degree to which the paralysis is psychic or motor. In this the extra stimulus is probably gained by the linking up of distantly connected association areas, and thus utilising or deviating their energy to the desired process. It is also possible that when one path is blocked by disease, others, perhaps not so direct, or possibly new paths, may be opened up.

The lesions are disseminated through the cerebro-spinal axis, and disturbances are, therefore, especially liable to affect systems which are extensive. Thus the pyramidal fibres, in their long course from the cerebral cortex to the anterior horn cells in the cord, are invariably and usually early affected: this affection may at first be so slight as to be evidenced only in a unilateral loss or diminution of the abdominal reflexes, or it may be so severe as to give a spasticity great enough to abolish the deep reflexes. As the co-ordinating system has peripheral, spinal, vestibular, cerebellar, and cerebral components, it is co-extensive with the nervous system: some part of this extensive system is almost invariably implicated. Nystagmus, tremor,—both static and intentional—and ataxia all occur: the spasticity to a certain extent masks the inco-ordination in the gait and gives rise to a spastic cerebellar type of progression. In spite of the length of the afferent paths of common sensation, loss of common sensibility is rare; the cause of this anomaly is uncertain, but it is possible that a considerable degree of involvement of the sensory columns may occur without a marked loss of sensibility, and that afferent sensory stimuli survive when weaker efferent stimuli fail.

It has been already pointed out that many of the symptoms are due to loss of cerebral inhibition, and this loss of cerebral control is a source of great confusion in interpreting the symptoms. Just as the interception of the volitional motor impulses permits increased irritation of the reflex mechanism, so does the loss of the unconscious cerebral control permit increased irritation of the automatic, the sympathetic, and the reflex mechanism.

The frequent presence of daily variations in the symptoms, after the disease has become established, emphasises the importance of the mental factor in the symptomatology. Structural lesions do not thus vary, but the external evidences of them—the patient's reaction to them—may vary. This variation probably depends upon environmental stress, upon nutritive factors, and probably chiefly upon the intermittent evolution of endogenous toxins.

(vii) It is suggested, therefore, that fleeting early motor paralyses and psychic symptoms may be related to the presence of areas in association paths: that remission of these symptoms is possibly due to the linking up of other association paths, or their compensation by the opening up of new paths; and

further, that the variation of the symptoms in all stages of the disease emphasises the importance of the mental factor in the symptomatology.

We are now in a position to turn to the conclusions based on definite histological data. An explanation has already been offered for the formation of certain types of areas, but one or two changes related to these areas still require to be mentioned.

(viii) The "areolar" zones, the true "areolar" areas, and the peri-vascular sieve-like areas must probably be referred to an œdema of the peri-focal and peri-vascular tissue, due to alterations in the blood and lymph circulation, firstly within the area, and then in the general tissue—through the presence of numerous foci. This is a secondary process, and is the result, and not the cause, of the sclerotic areas.

Areas of "shadow" sclerosis which have a definite outline or surround, with such an outline, true sclerotic areas must be ascribed to a diffusion of the toxic lymph in concentration insufficient to cause a complete demyelination. Such areas are often accompanied by a diffuse glia hyperplasia.

Further, areas of diffuse and lighter staining, which connect true sclerotic areas—sometimes over long stretches of tissue—may be caused by several factors, among which may be mentioned: (1) a diffuse spread of the toxic lymph in the lymph spaces, (2) circulatory derangements in consequence of numerous foci, (3) considerable participation of the axis cylinders causing a certain degree of secondary degeneration.

Finally, especially in the cord, there are frequent evidences of an early degeneration of the myelin sheath (Marchi staining) over the whole myelinated tissue and the nerve roots. This must be referred to the general somatic disturbances.

(ix) Sites of predilection are probably related (1) to the vessels: to the terminal ramifications of end-arteries, *e.g.*, on the ventricular surfaces, and to the points where vessels break up, *e.g.*, in the transition zone between grey and white matter—both in the central and cortical grey matter; and (2) to areas where much glia is normally present: again, therefore, to the peri-ventricular and to the peri-central tissue, to the optic chiasma, to the postero-median and para-median septa, to the marginal glia zone, and to the peri-vascular glia layer. The

peri-ventricular affection was very marked in six of the cases, slight in other two, and scarcely noticeable in one. The optic chiasma and one or both optic nerves were affected in seven out of the eight cases in which they were examined; and in six cases there was an extensive involvement of the optic radiations on both sides — an involvement which seemed to extend laterally and posteriorly from the sclerosis around the posterior horn of the lateral ventricle.

The frequent marked symmetry of the areas may be related to both of these circumstances.

(x) *Cortical Areas.*—The essential change is a demyelination, and the cyto-architecture of the cortex is frequently retained. On the other hand, the ganglion cells may show a marked increase of their satellite cells or all stages of degeneration, but these changes are not strictly limited to the area of demyelination. The glia cells in the deepest layers are markedly proliferated and show all stages of glia fibril formation: in the layer of the deep pyramids there is an hypertrophy of the normal glia cell content with formation of fibrils—insufficient to lead to sclerosis: in the upper layers the glia cell changes diminish in intensity, but fine glia cell forms with long processes of uniform calibre are present, especially around the ganglion cells and capillaries; and in the sub-pial marginal layer there is again an increase of both cells and fibrils. Cortical and subcortical areas were numerous in six of the cases, few in two, and in the ninth case not evident—but this brain was the only one not examined microscopically in large sections.

The changes in the cortex have been held to account for the psychical symptoms, often so marked a feature in the clinical picture. Such symptoms, however, have been present in cases which anatomically showed little cortical change, and, again, marked involvement of the cortex has been noted in cases which clinically presented no change in the intellectual or psychical functions. That the cortical areas share in the production of such symptoms cannot be doubted, but probably when these are defined they are dependent upon the inhibition of the action of those cortical cells which control the thalamic centres—the latter being intimately related to the emotions and forming part of Langley's autonomic system. Such inhibition would take place by the presence of sub-cortical areas in relation to the

cortico-petal fibres and to the presence of areas in the optic thalamus itself. Reference has already been made to the possibility that early psychical symptoms, such as restlessness, emotionalism, involuntary fits of laughter, may, together with the early transient palsies, be referred to a functional change which precedes an anatomical, structural change.

(xi) *Ganglion Cells.*—The ganglion cells in the grey matter of the spinal cord, and in the analogous nuclei in the medulla oblongata and pons, retain for a long time, even in the advancing sclerosis, their nucleus and chromophile granules. There is considerable histological evidence to show that this accounts for the absence of secondary degeneration in the anterior nerve roots, and, in part, for the remission of the symptoms—for there is no reason to suppose that such cells do not function.

The later varied changes in the ganglion cells must be ascribed to (1) the increasing condensation of the sclerotic process; (2) the absence of function; and (3) the associated somatic disturbances—the latter two factors will also influence the cells throughout the non-sclerotic tissue. I have never seen in the cord an increase of the satellite cells such as has just been described around the cortical ganglion cells.

(xii) *Axis Cylinders.* — The persistence of numerous axis cylinders in the sclerotic areas has been accepted as an axiom by most writers, and with this view I am in entire agreement. Secondary degeneration is therefore not well defined, but it affects a certain number of fibres.

In the early areas the axis cylinders undergo a swelling, which may go on to a granular disintegration, but those that survive the swelling, or have not shared it, persist, in the advancing sclerosis, for a long time. This circumstance has been held to explain (1) the absence of secondary degeneration: (2) the remissions: the gradual retrogression of the symptoms must be related to the resorption of the fat granule cells, the swollen axis cylinders then diminish in volume, and impulses would thus be able to proceed by means of the denuded axis cylinders—giving, therefore, a remission of the symptoms; and (3) the intention tremor—it is thought that this impulse would be carried on irregularly in a broken or jerky manner and would thus produce the oscillations which disturb the due execution of the voluntary movements. It is supposed that

this is effected in part by the absence of the insulating myelin sheath, which allows of the diffusion of the impulse to neighbouring axis cylinders, and also by the pressure of the increasing glia. It must be remembered, however, that though function is related in development to the presence of the myelin sheath, there is, as far as we know, no evidence that non-medullated axis cylinders do not transmit impulses as regularly as medullated fibres. Again, fibres lying adjacent to each other in an area do not end necessarily at the same level or in adjacent cells. The leakage, then, if it existed, would take place from the entire circumference, and the result would be not an inco-ordinated act, but a very feeble one, or none at all. Further, the glia meshes in which the naked axis cylinders lie must themselves insulate the fibre.

The distribution of the areas in all the cases lends support to the view which associates tremor with disturbances of the afferent and efferent extra-pyramidal path. These, according to Wilson, are respectively the cerebello-rubro-thalamo-cortical path from the nucleus dentatus of the cerebellum, by the superior cerebellar peduncle to the red nucleus of the opposite side, and thence to the inferior and external divisions of the optic thalamus, and so to the sensory and motor cortex. The efferent path is the lenticulo-rubro-spinal system, by the ansa lenticularis and sub-thalamic region to the red nucleus, and thence by the rubro-spinal tract of Monakow to the anterior horns of the spinal cord. Lesions of the former path probably remove the inhibitory function of the cortico-petal fibres which pass to the cortical cells, and lesions of the latter remove the normal inhibiting or steadying influence which the corpus striatum exercises on the anterior horn cell. Reference must again be made to the possibility that in the early stages functional changes may be present, and that the so-called dynamic modification of function may account for many of the early symptoms indicative of defect of cortical control.

(xiii) *Myelin Sheath of the Nerve Fibre.*—It is held by many writers that the morbid agent has a special affinity for the myelin sheath and for the myelo-axostroma, a constituent element of the axis cylinder, related to the myelin. The question, which is the primary structural element of the nervous tissues attacked by the causal agent? constantly recurs throughout the literature, and from this histological study it will be seen that the change in the

myelin sheath must be looked upon as the most constant, the most uniform, and in many cases the primary one. This has all the characters of a primary degeneration in contrast to those of a secondary degeneration, and is due to the destructive or irritant action of the stimulus. The myelin sheath is presumed to have an insulating action: it probably also facilitates the transit of nervous impulses.

(xiv) *Neuroglia.*—The glia changes set in, as a rule, simultaneously with those in the myelin sheath: the earlier reaction is due to the stimulant action of the morbid agent; and the later reaction is secondary also to the degenerative processes.

The glia changes correspond to the age of the process and its intensity: on the one hand glia cell proliferation with the formation of large protoplasmic, potential fibril-forming cells, and, later, glia fibril formation at the expense of this protoplasm: glia cells which have produced fibrils undergo slow, regressive changes, the glia nuclei subsequently atrophy and disappear, and to such a disappearance is due the fact that the old sclerotic areas have fewer nuclei than the normal tissue: the course and direction of the glia fibrils is, as a rule, in the direction of the normal longitudinal course of the nerve fibres, especially in the posterior columns of the cord, but frequent whorls are found or a dense tangle with very fine meshes.

In the progressive alteration in the glia all its component parts share—nucleus, protoplasm, and specific fibres: the "glia limitans peri-vascularis" is the first to show signs of reaction; the abundance of the glia in an area justifies the name "sclerosis," but the process may stop short of complete sclerosis, and so areas are present showing all degrees of density of the glia meshes: the sclerotic tissue is more loosely constructed in the grey matter of the cord and the analogous nuclei.

The glia changes in the cortex lend support to the view that the adult glia consists of (1) cells—with nuclei, cell bodies, and protoplasmic processes; (2) differentiated fibrils—whether anatomically independent or not; (3) intercellular fibreless glia.

It seems unnecessary to postulate areas of glia abnormality and that the blood-vessels carry the morbid agent to such points: but this can neither be proved nor disproved.

(xv) *Blood-Vessels.*—The topographical relation of the areas points to the blood-vessels, or their lymphatic sheaths, as the route

by which the "noxa" is conveyed to the tissues: in its diffusion through the vessel walls the morbid agent causes no recognisable primary alteration, but probably there is an abnormal permeability and diminished resistance to the oscillations of the blood-pressure by which an increased transudation of (toxic) lymph is made possible — the only anatomical expression of this is dilatation and engorgement.

On the ground of numerous serial sections of areas it has been concluded that it is the branches of one vessel stem which are affected, and that the primary minute areas, related to each branch, subsequently coalesce.

There is no evidence of a primary nuclear increase in the endothelium or in the adventitia: the first cellular increase is secondary to the resorptive processes—an infiltration of fat granule cells: this is followed by a proliferation in all the cell elements of the adventitia, and, at a later stage, by a modified infiltration of lymphocyte-like cells and a few plasma cells. The derivation of the nuclear content of the adventitia at a later stage is, therefore, a very varied one. The later changes in the vessel walls are related to a condensation of its adventitia, such as is found in all chronic conditions: the separate layers of the adventitia gradually blend, its nuclear contents break up, and are carried away in the lymph spaces or fuse with the adventitia; and finally, both adventitia and media show a homogeneous "hyaline" change in which nothing can be recognised of specific muscle, connective tissue, and elastic elements.

(xvi) *Fat Granule Cells* (Fettkörnchenzellen).—The first fat granule cells probably arise from the proliferation of the small round glia cells, and at a later stage, also from a proliferation of the endothelial elements of the adventitia. They absorb the degenerated myelin in the form possibly of a solution, which is precipitated as granules in the protoplasmic substance of the cell: they pass, or are drawn in by suction and the pressure of the increasing glia fibrils, into the lymphatic sheaths of the capillaries and transition vessels, and thence by the larger vessels to the inner layers of the pia. On their way large numbers are broken up *in situ*, and their crenated nuclei can for a long time be recognised as one of the nuclear elements of the adventitia.

(xvii) The cranial and spinal nerve roots are frequently involved in the glious portion of their extra-medullary course.

Such changes in the posterior spinal and analogous nerve roots may account for the existence of the sensory changes, which are almost always present to a slight extent, and especially for the trigeminal neuralgia.

(xviii) *The Meninges.*—The occasional variations in the meninges are related to complications, and are probably of no significance in the pathogenesis of the disease.

Approximately final answers can, therefore, be given to the questions relating to the nature of the process underlying disseminated sclerosis, to its origin, to the relation of several secondary etiological factors, and to certain aspects of the mode of action of the final causal agent. We are, however, still quite in the dark concerning the nature of this final cause which determines, anatomically, a process so well defined, and one without any close analogy; and, clinically, a disease which, however variable the early symptoms, conceals its characteristic course only temporarily. The frequent presence of the cardinal symptoms, in spite of the seeming irregularity and incidence in the position of the areas and their restriction, seems to point to a certain constancy in the changes, the nature of which is not yet fully known, but which may be dependent on the production of a specific metabolic disturbance, due to a latent organism or an auto-toxin. All that is most important, therefore, still remains for future investigations along bacteriological, serological, and experimental lines, which have recently done so much to clear up the etiology of other affections of the central nervous system.

Abstracts

ANATOMY.

HISTOLOGY OF THE SENSORY ROOT OF THE TRIGEMINAL
(298) **NERVE OF THE RAT (*Mus norvegicus*).** LYNN ARTHUR HOAG, *Anat. Record*, 1918, xiv., Feb., p. 165.

CONCLUSIONS:—

(1) In the sensory root of the trigeminal nerve of the rat (*Mus norvegicus*), about 1 mm. from the pons, is an outwardly convex line which marks an abrupt change from the peripheral to the central type of nerve fibres.

(2) The peripheral supporting tissues, endoneurium and epineurium, together with the neurilemma, meet, without intermingling, the central supporting tissues, neuroglia and pia mater, to form an indefinite lamina cribrosa through which the bundles of nerve fibres pass.

(3) The axons extend through this change uninterruptedly and unaffected morphologically.

(4) The peripheral myelin shows—

(*a*) A deeper coloration than the central when both are identically treated with myelin stains.

(*b*) A "neuro-keratin network" which is more prominent and more regular than that in the central fibres when both are identically treated.

These facts may be interpreted as showing distinct chemical and physical differences between the central and peripheral myelin.

(5) A number of other mammals show a similar or identical picture in the sensory roots of their trigeminal nerves.

(6) This change may be considered as occurring at the line where the pia mater and external limiting membrane surrounding the embryonic nervous tube were pierced by the growing processes of neuroblasts, these membranes acting as barriers against the entrance of sheath cells into the neural tube. The position of this line depends upon the amount of tension to which the root is subjected during development. (Mention is made of the practical importance attached to this transition line in its relation to the etiology of tabes dorsalis.) LEONARD J. KIDD.

THE INFERIOR OLIVE IN VERTEBRATES. F. H. Kooy, *Folia* (299) *neuro-biologica*, 1917, x., pp. 205-369.

On comparing the inferior olives of Fishes, Birds, and Mammals, the following line in the phylogenetic development can be traced:—

In Fishes only the medial complex, situated near the raphe, is present. In birds and lower Mammals two outgrowths occur, directed dorso-laterally and ventro-laterally. For some unknown reason the ventro-lateral component of the olivary complex is then obliged to increase and when it develops more and more, the dorso-lateral one (dorsal olive) is confined to its medial part. Also the ventral component of the medial olive is replaced by the new, large, ventro-lateral (principal) olive.

The ontogenetic development follows a similar line.

Why does this ventro-lateral part increase so enormously? It may be caused by a higher differentiation of motility. Probably various sensory stimuli, having to do with the statics of body and limbs, are correlated in the olive, from where they are conducted to the cerebellum. Animals such as Amphibia and Reptilia with little motility have little or no olive, while it is considerably developed in swimming, flying, and motile animals. Cetacea, moving in the same manner as Fishes, have an enormously developed medial olive, in fact the medial component is hypertrophied. Similarly, the hypertrophy of the principal olive in the superior Primates, and especially in Man, may have to do with the finer differentiation of the movements of the limbs, each of which acquires a greater independency of their motile possibilities.

A. Ninian Bruce.

THE DISTRIBUTION OF SYMPATHETIC NEURONES IN THE (300) **MYENTERIC AND SUBMUCOUS PLEXUSES IN THE SMALL INTESTINE OF THE CAT.** Albert Kuntz, *Proc. Amer. Assoc. Anatomists*, 1917, Dec. 27, 28, 29 (*Anat. Record*, 1918, xiv., Jan., p. 42).

"As determined by actual counts of the sympathetic cells present in transverse sections of the small intestine of the cat, sympathetic neurones are most numerous in the myenteric plexus at the pyloric end of the duodenum. Advancing distally, their number diminishes rapidly until a low point is reached in the upper ileum. Distal to this point, relatively little variation occurs until a point approximately 12 inches from the ileocolic valve is reached. From this point to the ileocolic valve there occurs a gradual and steady increase."

"In the submucous plexus sympathetic neurones are most numerous, approximately 2 inches distal to the pylorus. Advancing distally, their number diminishes rapidly until a low point is

reached somewhat proximal to the low point in the myenteric plexus in the upper ileum. Distal to this point, there is a rapid increase until a relatively high point is reached just distal to the low point in the myenteric plexus. Advancing farther distally, the number of sympathetic neurones diminishes very rapidly until another low point is reached, after which there occurs relatively little variation until a point approximately 12 inches from the ileocolic valve is reached. Distal to this point there occurs a very rapid rise, reaching its maximum approximately 6 inches from the termination of the small intestine, then a sharp decline toward the ileocolic valve." LEONARD J. KIDD.

PHYSIOLOGY.

(301) **THE ANTAGONISTIC ACTION OF ADRENALIN AND OF PITUITARY EXTRACTS ON THE BRONCHI. (Action antagoniste de l'adrénaline et des extraits hypophysaires sur les bronches.)** B. A. HOUSSAY, *Presse Méd.*, 1918, xxvi., p. 513 (3 figs.).

IN dogs and guinea-pigs pituitary posterior lobe extracts have a broncho-constrictor action, whereas adrenalin acts as a broncho-dilator. The broncho-constriction produced by pituitary extracts is abolished by large doses of atropine, but not by vagotomy. Houssay concludes that the broncho-constriction of pituitary extracts is due to direct stimulation of the unstriped muscle of the bronchi. Both he and Lanari have seen a typical asthmatic attack supervene on injection of pituitary extracts in susceptible patients. LEONARD J. KIDD.

(302) **THE FUNCTION OF THE ADRENALS.—I. THE SUPPOSED PHYSIOLOGICAL RÔLE OF ADRENALIN. (La fonction des surrénales.—I. Du rôle physiologique supposé de l'adrénaline.)** E. GLEY and A. QUINQUAUD, *Journ. de Physiol. e. d. Path. gén.*, 1918, xvii., Juillet, p. 807 (23 figs.).

EXPERIMENTS chiefly on dogs and rabbits, sometimes on cats. The writers conclude :—

1. The arterial pressure is maintained at its normal level after double adrenalectomy or ligature of the adrenal veins, *i.e.*, without the aid of adrenalin.

2. The splanchnic nerves retain their excitability after double adrenalectomy performed with the necessary precautions, or after ligature of the adrenal veins.

3. The cardiovascular effects of asphyxia remain the same after these two operations.

4. Adrenalin, which can be found in notable quantity in the blood of the inferior vena cava, above the opening of the adrenal veins after stimulation of the splanchnic nerve, is not found, by the method adopted by us, in the upper segment of the vena cava nor in the heart, except in a physiologically insignificant amount. One cannot, therefore, speak of a physiological adrenalinæmia.

From these facts the writers ask what becomes of the adrenalin which passes into the efferent blood of the adrenals? Is it merely diluted in the mass of blood? Is it destroyed? If it is difficult to admit the reality of a physiological adrenalinæmia, may there not be such a thing as a pathological excess of adrenalin which can by means of the blood act on all the sympathetic nerve-terminations on which it has an elective action? Finally, if adrenalin is to be regarded as probably an excretory product, without a normal physiological rôle, and not as a secretion, what is the function of the adrenals? They must have other functions, independently of the production of adrenalin. Future researches must solve these various questions. LEONARD J. KIDD.

PSYCHOLOGY.

THE PSYCHOLOGY OF INTELLIGENCE. (La Psychologie de l'In-
(303) **telligence.)** E. CLAPARÈDE, Reprint from *Scientia*, Nov. 1917.

THERE is much justice in M. Claparède's complaint that manuals of psychology are still too much divorced from real life. Hence the distrust with which the science is viewed by such practical people as teachers and psychiatrists, who feel at every step that it ought to light their way, but actually leaves them to grope forward in darkness.

The pamphlet before us is a suggestive discussion of the nature of intelligence, the aim of which is simply to set forth more clearly the nature of the problem. Intelligence in this connection M. Claperède defines as the power of resolving new difficulties by means of thought. Intelligence begins to work when instinct and habit fail. The germ of it appears in the method known as "trial and error," *i.e.*, a series of attempted adaptations which at last by chance give the right solution. This experimentation is not, it is true, intelligence. Yet it is its functional equivalent. It may be termed empirical intelligence; the other method, where thought guides the activity, may be termed reasonable intelligence.

M. Claparède does not fail to point out that the rational

method is to some extent hostile to the trial and error method. Children about the age of three pass somewhat abruptly from the one method to the other; and the first result from this transition is that the thoughtful senior is often slower than his junior in solving some practical problem. Thinking inhibits activity. We may add that activity also to some extent inhibits thought, so that it seems doubtful whether M. Claparède is right in sub-suming both these methods under the head of intelligence. "Trial and error" seems more on the level of instinct; in an unpleasing situation the animal is instinctively impelled to bestir himself.

M. Claparède seems to regard instinct as wholly stereotyped, and so as differing profoundly in nature from intelligence. Intelligence is a "substitute" for instinct; it is not an improved form of it. Intelligence is at work when a new adaptation is required; instinct follows old-established lines. Yet recent research has shown that instinct is less stereotyped than we once imagined; in other words, that individual intelligence is at work in the midst of instinct. C. S. Myers has even gone so far as to identify the two; "instinct regarded from within," he says, "becomes intelligence; intelligence regarded from without becomes instinct." However this may be, it seems certainly a mistake to consider that intelligence has its birth only in situations so new that instinctive adaptations are wholly inapplicable. Few situations are entirely new. Even when a situation as a whole is new, there may be elements in it which appeal both to habit and to instinct, which may thus be determining factors in "trial and error." Conversely, in "old" situations, which are in the main dealt with by habit or instinct, there may at any time appear new elements, to cope with which intelligence is required; so that intelligence has its birth not only, as M. Claparède would have it, in the experimentation of "trial and error," but in the partial frustration or interference with the smooth course of any activity.

In the second half of the pamphlet the writer goes on to analyse the movement of intelligence into three phases or different operations. The first, the point of departure, is the question; the second is the search, the discovery of the hypothesis; the third is the control, the verification of the imagined hypothesis. Intelligence, be it remembered, arises only when there is failure of adaptation. The function of the question is to direct the mental activity according to the need of the moment. The second operation is to find an answer to the question, and the answers present themselves under the form of hypotheses. The formation of these hypotheses is a function neither of the will nor of the reason, but of the imagination. The final phase may assume either of two forms. We may accept—or reject—the hypothesis the moment it presents itself with an indescribable feeling of certainty; or we

may proceed to a verification which will more or less take on the form of reasoning (if . . . then . . .).

To study the exact form which these three operations assume in the minds of individuals is the next task for the psychologist. When this has been done in connection with intellectual aptitudes and individual types there cannot fail to result numerous suggestions for the education of intelligence.

MARGARET DRUMMOND.

PATHOLOGY.

OBSERVATIONS ON THE ROLANDIC AREA IN A SERIES OF
(304) **CASES OF INSANITY.** JOHN TURNER, *Journ. Ment. Sci.*, 1918, Oct., p. 344.

ANOMALIES in the form of the Rolandic fissure, and in the architecture of its cortex, occur more frequently among the insane, especially among the dementia præcox class and imbeciles, than is usual in normal individuals, and the two sexes show distinctive characters.

Micrometric study of the Rolandic area indicates sexual differences in the width of the laminæ, and shows that the width of the cortex and its individual layers in both pre- and post-central lobes is an innate feature, not markedly affected by the forms of insanity, the degree of dementia, or as the result of senility.

The author is of the opinion that the axonal type of Betz cell is due to defective structure, and probably deficient durability, owing to the morbid influence of perverted metabolism coming into action early in the life of the individual. The presence of an undue proportion of this type of cell is a rough index of the stability of the brain; according to this criterion the brain of the precocious dement is the most unstable of all, and relatively more unstable in females than in males. This accords with clinical experience. This type of cell is more prevalent among females than males in sane persons, and in all classes of the insane.

Tables illustrating the researches of the author are appended.

H. DE M. ALEXANDER.

CONCERNING THE EXTENSION OF SARCOMA PIÆ MATRIS.
(305) F. H. KOOY, *Psychiat.-Neurol. Klinick*, 1918.

ACCORDING to this case of sarcomatosis the following two systems must be distinguished:—

1. The subarachnoid space, continuing into the so-called "Pialrichter" and the intra-adventitial spaces; the latter are

only present around the larger vessels, but are not found with the capillaries.

2. The system of His: epicerebral (epispinal) space, continuing into the perivascular lymphatics. Their being preformed is not proved, but they are at least places of less resistance. The pericellular spaces, if they exist, do not communicate with the perivascular lymphatics.

The subarachnoid and subdural spaces are sharply separated inside the dura mater, but are joined directly outside this membrane.

For the differentiation of diffuse sarcomatosis from tumour cerebri and meningitis, great value must be attached to the early absence of the knee and ankle jerks, and to the changes of the cerebro-spinal fluid (amber-yellow colour, tumour cells).

A. NINIAN BRUCE.

EXPERIMENTAL LESIONS IN THE CERVICAL SYMPATHETIC (306) GANGLIA IN RELATION TO EXOPHTHALMIC GOITRE.

LOUIS B. WILSON, *Amer. Journ. Med. Sci.*, 1918, clvi., Oct., p. 553.

GOATS were used for these experiments, since the tissue elements of their sympathetic ganglia and thyroid body closely resemble those of man in their normal and pathological morphology and staining reactions. Stimulation of the ganglia was produced sometimes by electricity, but in most cases by direct bacterial inoculation into the ganglia. The writer concludes that from these experiments it would appear that irritation from the presence of certain bacteria within the cervical sympathetic ganglia of the goat may produce histological pictures within the ganglia and in the thyroid, which parallel those found in the various stages of progressive and regressive exophthalmic goitre. This evidence supports the suggestion that in exophthalmic goitre the thyroid receives its stimulus to over-function through its nerve supply, and as a result usually of a local infection in the cervical sympathetic ganglia. LEONARD J. KIDD.

THE RAT AND POLIOMYELITIS: AN EXPERIMENTAL STUDY.

(307) HAROLD L. AMOSS and PETER HASELBAUER, *Journ. Exper. Med.* 1918, xxviii., pp. 429-434.

THE central nervous system and other viscera of six rats, collected in a district in Greater New York in which many cases of epidemic poliomyelitis occurred, have been proved incapable of inciting, on inoculation, experimental poliomyelitis in *Macacus rhesus* monkeys.

The virus of poliomyelitis injected into the brain of white rats does not survive there as long as four days in a form or in amounts

sufficient to cause infection when inoculated intracerebrally into monkeys.

The failure of the virus injected into the brain of rats to incite infection in monkeys is not due to the quantity introduced, since at the expiration of one and a half hours after the injection, the excised inoculation site when injected into the monkey caused typical experimental poliomyelitis.

It does not appear probable, therefore, that the rat acts in nature as the reservoir of the virus of poliomyelitis.

A. NINIAN BRUCE.

AN EXPERIMENTAL TEST OF NUZUM'S ANTIPOLIOMYELITIC
(308) **SERUM.** HAROLD L. AMOSS and FREDERICK EBERSON, *Journ. Exper. Med.*, 1918, xxviii., pp. 323-331 (5 figs.).

THE antistreptococcic serum of Nuzum and Willy has failed to show in the monkey neutralising or therapeutic power when applied by their methods against small doses of the virus of poliomyelitis. Under the same conditions the serum of monkeys recovered from experimental poliomyelitis proved neutralising and protective.

The experimental and other evidence adduced by those who regard the streptococcus as playing an essential part in the pathology of epidemic poliomyelitis, and the antistreptococcic sera as exhibiting therapeutic properties for man and monkeys, is regarded as imperfect and inconclusive. A. NINIAN BRUCE.

PHYSIOLOGICAL STIMULATION OF THE CHOROID PLEXUS
(309) **AND EXPERIMENTAL POLIOMYELITIS.** S. FLEXNER, H. L. AMOSS, and F. EBERSON, *Journ. Exp. Med.*, 1918, xxvii., pp. 679-687.

INTRAVENOUS inoculation of the virus of poliomyelitis does not in itself suffice to induce infection and paralysis, and intravenous injection of extracts of the choroid plexus, which in themselves excite the secretory functions which preside over the formation of the cerebro-spinal fluid, is powerless to modify this result. This fact is considered of great interest and importance, since it has already been shown that very slight structural changes in the meningeal-choroidal complex suffice to make possible a certain infection under these circumstances. Apparently more augmentation from time to time of the secretory functions of the choroid plexus, through intravenous injection of an extract of the choroid plexus and while the virus is still circulating, is insufficient to ensure passage of the virus from the blood into the nervous tissues, upon which infection depends. Neither does the augmentation exercise a restraining influence on the development of infection otherwise capable of taking place. A. NINIAN BRUCE.

THE PASSAGE OF NEUTRALISING SUBSTANCE FROM THE
(310) **BLOOD INTO THE CEREBRO-SPINAL FLUID IN ACTIVELY IMMUNISED MONKEYS.** SIMON FLEXNER and HAROLD L. AMOSS, *Journ. Exp. Med.*, 1918, xxviii., pp. 11-17.

ACTIVE complement is not required for the neutralisation of the virus of poliomyelitis by antibodies.

The neutralising substances pass from the blood of actively immune monkeys into the cerebro-spinal fluid when the permeability of the meningeal-choroidal complex is increased by an aseptic inflammation such as that induced by an intraspinal injection of horse serum. The immunity bodies in effective neutralising quantities can be detected in the cerebro-spinal fluid as early as twelve hours and as late as forty-eight hours after the intraspinal injection of horse serum. Doubtless the passage continues as long as the inflammation persists.

This ability of the neutralising substances to pass from the blood into the cerebro-spinal fluid under conditions of inflammation plays an important part in arresting the multiplication of the virus on which the cessation and restoration of the poliomyelitic processes depend. The widespread involvement in the inflammatory conditions of the meninges, choroid plexus, &c., accompanied by severe lesions of the blood vessels, opens the way widely for the passage of antibodies into the cerebro-spinal fluid, whence all parts of the nervous tissues are reached, and also, probably, for direct transudation into the affected parts of the spinal cord and brain.

The use of an alien specific immune serum to anticipate the action of the individual's own immunity products appears logical, while the employment of normal serum has no basis in experiment, and would seem not to offer any therapeutic advantage whatever.

A. NINIAN BRUCE.

CULTIVATION EXPERIMENTS ON THE GLOBOID BODIES OF
(311) **POLIOMYELITIS.** WILSON G. SMILLIE, *Journ. Exp. Med.*, 1918, xxvii., pp. 319-340.

THE globoid bodies, identical in morphological and cultural characteristics with the organisms described by Noguchi and Flexner, have been obtained in twenty-two cultures from the tissues of seven monkeys suffering from experimental poliomyelitis.

Nineteen of the strains were cultivated from the cerebrum, one from the cervical region of the spinal cord, and two from the spleen.

None of the cultivated strains inoculated produced typical poliomyelitis in monkeys. The recovery of a strain of globoid bodies from the inoculated monkey is as difficult as is the original cultivation of the organisms from animals inoculated with the ordinary virus of poliomyelitis.

Nothing in this study has served to implicate the streptococcus in the pathology of the poliomyelitic process; the streptococcus is, however, encountered as a common contaminant or secondary invader, especially in animals which have been etherised while moribund, or which had died some hours previous to the autopsy. When the infected and paralysed animals are killed while still strong, secondary invading bacteria, including the streptococcus, tend to be absent from the tissues. A. NINIAN BRUCE.

SURVIVAL OF POLIOMYELITIC VIRUS IN THE BRAIN OF THE RABBIT. HAROLD L. AMOSS, *Journ. Exp. Med.*, 1918, xxvii., pp. 443-447.
(312)

SUSPENSIONS of the central nervous tissues of monkeys, containing the active filterable virus of poliomyelitis, may be injected into the brain of rabbits without setting up symptoms, provided the volume of injection does not cause dangerous increased intracranial pressure.

The active virus of poliomyelitis survives in the brain of rabbits for four days, as determined by tests in the monkey, into which the excised site of injection in the rabbit brain is reinoculated. It cannot be detected by this test after the expiration of seven days.

The virus is unadapted to the rabbit, and neither induces lesions nor survives long in the central nervous organs of that animal. In this respect it differs from certain streptococci cultivated from poliomyelitic tissues.

A monkey immunised to streptococcus cultivated from human poliomyelitic nervous tissues, yielded a serum which agglutinated the streptococcus in high dilution, but was without neutralising action on the filtered virus; and the streptococcus-immune monkey was not protected against the effects of an intracerebral inoculation of the filtered virus.

These experiments provide additional reasons for concluding that the streptococcus cultivated from cases of poliomyelitis differs essentially from the filterable virus, and is not the microbic cause of epidemic poliomyelitis. A. NINIAN BRUCE.

CLINICAL NEUROLOGY.

ELECTROMYOGRAPHIC STUDIES OF CLONUS. STANLEY COBB, *Bull. Johns Hopkins Hosp.*, 1918, xxix., p. 247. (Illus.)
(313)

ELECTROMYOGRAPHY is a more accurate and more easily applied method for the study of muscular phenomena than those formerly applied to clinical observation.

Clonus gives a characteristic electromyogram.

Fatigue does not affect the rate of clonus.

Increased stimulus increases the rate of clonus and the size of the electromyographic waves, but does not change the rate of the action-currents.

The number of action-currents per contraction varies with the type of clonus. A. NINIAN BRUCE.

PARALYSIS OF THE GLOSSO-PHARYNGEAL NERVE. Character-
(314) **istic signs of the paralysis of the upper constrictor of the pharynx (curtain movement of the posterior wall of the diseased towards the healthy side.)** MAURICE VERNET, *Med. Rev. of Reviews*, 1918, xxiv., p. 521.

THE motor disorders of glosso-pharyngeus palsy are but little known: they "may exist while the taste remains unimpaired, but when taste is affected paralysis of the superior constrictor of the pharynx invariably exists." In 1862 Chauveau showed that stimulation of the roots of the glosso-pharyngeal nerve caused contraction of the antero-superior part of the superior constrictor of the pharynx. Vernet believes that the upper constrictor narrows the calibre of the pharynx, while the middle and lower constrictors shorten the pharynx. The present war has given us information on the symptomatology of cases of paralysis of the glosso-pharyngeus. Of the functional signs of palsy of the superior constrictor muscle the most important is inability to swallow solids, especially bread and meat. A few days after the injury the patient feels that the throat has become smaller, or he complains of discomfort or of pressure on the posterior wall of the diseased side. Visual inspection of the pharynx shows nothing abnormal while the parts are at rest. If, however, nausea is produced by plunging the tongue spatula deeply, or if the patient be made to say "ah" or "a," the posterior wall of the pharynx moves from the injured to the sound side, and a little obliquely upwards. This movement is rapid and very characteristic: Vernet calls it the curtain movement. He has often obtained a greater amplitude of movement by making the patient open his mouth vigorously, and by drawing out his tongue with a compress while he was uttering a sound or swallowing. Tickling the pharyngeal mucous membrane on the healthy side is also effectual. Vernet discusses the question of the taste function of the glosso-pharyngeus nerve, and gives the following conclusions:—

1. Difficulty of swallowing solids is due to paralysis of the superior constrictor of the pharynx.

2. The superior constrictor is innervated by the glosso-

pharyngeal nerve; and palsy of the former is a sure sign of injury to this nerve.

3. Paralysis of the vagus or the spinal accessory nerves cannot in any way give similar disorders of deglutition of solids, whether the middle and the lower constrictors are innervated by the glosso-pharyngeal or not, as the stylo-pharyngeus and the stylo-hyoid muscles may be capable of shortening the pharynx.

4. The curtain movement of the posterior pharyngeal wall from the diseased to the sound side characterises the paralysis of the superior constrictor (Vernet).

5. Taste disorders of the posterior part of the tongue invariably accompany motor paralysis when the nerve is radically amputated or deeply injured. These symptoms may not exist in cases of superficial injury or mild compression of the nerve. In these cases motor palsy is sufficient evidence on which to declare injury to the glosso-pharyngeal nerve.

6. The easy and rapid recognition of this motor paralysis must cause us to search for it systematically in cases of disorders of deglutition of solids. (Vernet adds a table which gives the motor and sensory innervation of the pharynx according to (*a*) Escat, and (*b*) Vernet.) LEONARD J. KIDD.

ON EARLY SIGNS OF POST-DIPHTHERITIC PARALYSIS. (Über Frühzeichen der post-diphtherischen Lähmung.) T. GOTT, *Münch. Med. Woch.*, 1918, lxv., p. 669.

(315)

A VERY frequent but unknown symptom of diphtheritic paralysis is the facial or Chvostek's phenomenon. If a child suffering from post-diphtheritic palatal palsy or other phenomena of post-diphtheritic palsy has the middle of the cheek struck with the percussion hammer, in many cases a rapid twitching occurs, either in the region of the upper lip or in the alae nasi, lids and root of the nose. In the course of the last two years the phenomenon occurred in about two-thirds of Gott's cases, *i.e.*, in 13 out of 20, or 65 per cent. According to Gott this sign is one of the earliest symptoms of diphtheritic paralysis, and often precedes the other paralytic phenomena. Another early sign of diphtheritic paralysis is increased activity of the knee jerk. Chvostek's phenomenon and increased knee jerk may be present in the beginning of convalescence from diphtheria before there is any suggestion of paralysis. In the majority of cases Chvostek's sign vanishes entirely, and the knee jerks become normal again without any paralysis occurring in the palate or eyes. But children who show the facial phenomenon and increased knee jerks after diphtheria are much more likely to develop paralysis than those in whom these symptoms are absent. According to Hamman, only 7·5 per

cent. of the latter developed paralysis, as compared with 31 per cent. of the former. The practical significance of these observations is that by constant examination of the facial phenomenon and the knee jerks from the beginning of convalescence a number of those predisposed to paralysis can be detected. Although it may be impossible to prevent paralysis entirely, further damage to the nervous system can be prevented by keeping the patients at rest in bed.

J. D. ROLLESTON.

SUB-CONJUNCTIVAL INJECTIONS AND THE OCULO-CARDIAC
(316) **REFLEX. (Injections sous-conjonctivales et réflexe oculo-cardiaque.)** E. AUBINEAU, *Annales d'Oculistique*, 1918, clv., Sept., p. 405.

AUBINEAU has found a positive oculo-cardiac reflex in eight out of nine patients on whom he has practised a sub-conjunctival injection of one cubic centimetre of normal saline solution for detached retina, either unilateral or bilateral. He has never obtained an oculo-cardiac reflex from an injection of a few drops of a sublimate solution under the conjunctiva for keratitis. The larger saline injections give a pronounced slowing of the heart, and a disturbance of its rhythm which may be somewhat disquieting to witness. The cardiac slowing is seen within a minute or two after the sub-conjunctival injection, and usually lasts for five or six minutes. In one of his nine cases the oculo-cardiac reflex was absent. The greatest slowing was from a pulse of 76 to one of 40.

LEONARD J. KIDD.

INVERSION OF THE OCULO-CARDIAC REFLEX IN TUBER-
(317) **CULAR MENINGITIS. (Réflexe oculo-cardiaque inversé dans la méningite tuberculeuse.)** J. SABRAZÈS, *Gaz. Hebd. des Sci. Méd. de Bordeaux*, 1918, xxxix., 21 Avril, p. 60.

IN a brief note Sabrazès mentions that in cerebro-spinal meningitis the oculo-cardiac reflex is generally present. An inverted reflex is of bad omen. In tubercular meningitis the reflex is abnormal—often it is absent; it may vary from day to day; and it is often inverted, especially towards the end of the case.

LEONARD J. KIDD.

TUBERCULOUS CEREBRAL SOFTENING IN A TUBERCULOUS
(318) **PATIENT. (Ramollissement cérébral bacillaire chez un tuberculeux.)** LENOBLE, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, 3 sér., xlii., p. 279.

A RECORD of a case of left hemiplegia in a man, aged 71, the subject of pulmonary tuberculosis. The necropsy showed numerous atheromatous foci in the right Sylvian artery and its branches,

and an area of softening occupying the paracentral lobule and extending back to the occipital lobe. Similar changes were found in the vessels in the left hemisphere. A portion of the softened area in the right hemisphere was injected into a guinea-pig, which developed tuberculosis. J. D. ROLLESTON.

TRICHINOSIS COMPLICATED BY ENCEPHALITIS. A clinical and histopathological study. (319) L. BLOCH and G. B. HASSIN, *Med. Record*, 1917, xci., p. 537.

A MAN, aged 23, had an attack of vomiting, abdominal pain and diarrhœa, followed by fever and prostration. On admission to hospital seven weeks after the onset there was distinct tenderness over the deltoids, pectorals, thigh, and calf muscles. Spinal puncture yielded a clear fluid under high pressure without any trichinæ. A section removed from the biceps showed unencapsuled trichinæ. Six days later he had a generalised convulsion, followed by left hemi-paresis.

Death, preceded by coma, took place next day. The necropsy showed intense meningeal congestions, with œdema more pronounced on the posterior half of the right cortex.

Sections of the brain, pons, and basal ganglia showed numerous dilated spaces or excessive vacuolation, caused by enlargement of the perivascular spaces (étal criblé). J. D. ROLLESTON.

"OBSCURE EPIDEMIC ENCEPHALITIS." SOME OBSERVATIONS ON BLOOD COUNTS AND CEREBRO-SPINAL FLUIDS. (320) S. K. VAIDYA, *Lancet*, 1918, ii., Sept. 7, p. 322.

TWENTY cases were examined. The leucocytosis varied from 8,000 to 9,000 per cmm., which is much below that recorded for poliomyelitis at the Rockefeller Institute, viz., 15,000 to 30,000. The cerebro-spinal fluid is not as grossly affected as in poliomyelitis, in which often cell counts running into several hundreds, and sometimes exceeding 1,000 per cmm., have been recorded. The deviation actually is very small.

There is no evidence that the virus of epidemic encephalitis is the same as in poliomyelitis. The disease cannot be experimentally communicated to monkeys with production of paralysis.

Neither the blood nor spinal fluid afford any positive proof of the diagnosis of epidemic encephalitis, but they assist by ruling out tuberculous meningitis, pneumonia, &c.

A. NINIAN BRUCE.

A CASE OF TRANSIENT HEMIPLEGIA. H. H. MILLS. *Lancet*, (321) 1918, ii., Aug. 3, p. 145.

A JEWESS, aged 28, woke at 7 A.M. to find her left leg and arm flaccid and useless; her face was drawn to the right, and speech was much impaired. Between 8 and 9.30 A.M. the paralysis had disappeared, but returned by 11 A.M. At 9 P.M., while visited by Dr Mills, the condition was observed to pass off in less than five minutes. During the following night the condition returned for a quarter of an hour, the patient being conscious of the onset and passing of the attack. The Wassermann reaction was negative. Local spasm of the arteries is suggested as the cause.

A. NINIAN BRUCE.

AN OPERABLE TUMOUR INVOLVING THE GASSERIAN GANGLION. CHARLES H. FRAZIER, *Amer. Journ. Med. Sci.*, 1918, (322) clvi., p. 483 (2 figs.).

WITH few exceptions, tumours of the Gasserian ganglion are really tumours of the middle or posterior fossa, with only coincidental involvement of the ganglion, and not infrequently of other contiguous nerves, *e.g.*, third, fourth, or sixth cranial.

In Frazier's case operation was performed within three months of the appearance of symptoms. A man, 53, had suffered for three months from severe "jumpy" pain in the area of the second division of the left trigeminus, which later became worse, and was followed by numbness in upper lip which was associated with, or followed by, neuralgia above the left eye. Alcohol injections gave only partial relief, so patient preferred a radical operation. Frazier exposed the tumour; the dura was easily separated over the greater portion of the tumour, but the latter was firmly adherent in the neighbourhood of the second division and of the sensory root. The sensory root was avulsed, and the tumour removed *in toto*, and afterward the outer two-thirds of the ganglion was taken away because of the possibility of its being infiltrated with tumour-cells. Recovery of patient and healing were rapid. Patient, seen fifteen months later, had no signs of recurrence, apart from certain paræsthesiæ which might well have been due to the sensory root avulsion. The tumour was an endothelioma. (The paper has some useful remarks on the symptomatology, course, and differential diagnosis of tumours involving the Gasserian ganglion. The tumour measured 2·5 × 1 × 1 c.m.)

LEONARD J. KIDD.

SOME FAMILIAL AND HEREDITARY FEATURES OF AMAUR-
(323) **OTIC IDIOCY.** ISADOR H. CORIAT, *Amer. Jour. Insan.*, 1918, July p. 121.

A STUDY has been made of twelve families in which occurred cases of amaurotic idiocy in order to determine the hereditary familial and social features of the disorder with the hope of solving the question of the disease process and its racial psychopathology. Out of fifty-one children in these twelve families there were seventeen cases of amaurotic idiocy, or 33·3 per cent. The disease was nearly twice as frequent in males as in females, in the proportion of eleven boys to six girls. Emaciation and marasmus was a frequent feature of the disease as a terminal disorder. In the author's experience it is very doubtful if genuine amaurotic family idiocy can be found among Christian children. The cases in non-Jewish children are far less characteristic than in Jewish, in that the eye findings are less typical, and in many instances the diagnosis remains doubtful. In all the families in which amaurotic idiocy occurred there was a strong neuropathic or psychopathic background in the form of juvenile delinquency, stammering, disseminated choroiditis, dementia præcox, hysteria, syphilis, and tuberculosis, although concerning the two latter, none of the cases of amaurotic idiocy could be said to be tubercular or syphilitic in origin. In none of the family studies was there any history of consanguinity. The nerve cell changes in this disease are similar to the fœtal cells of Cajal which have been described in idiocy and juvenile paralysis. From this fact the author believes that a child with amaurotic idiocy possesses an inferior nervous system, and in consequence a rapid deterioration tends to quickly follow, and this is particularly so as regards the visual system. It is this organic inferiority of the nervous system which explains the occurrence of this disease in Jews rather than in Christians. It is a well known fact that the Jewish race is much more liable than other races to the functional psychoses and the psychoneuroses.

D. K. HENDERSON.

FAMILIAL PERIODIC PARALYSIS (ACETONE IN THE SWEAT
(324) **AND URINE DURING THE ATTACKS). (Paralisi periodica famigliare. Acetone nel sudore e nell' orine durante gli accessi.)** C. PASTINE, *Riv. di Patol. nerv. e ment.*, 1918, xxiii., p. 65.

THIS disease was first described by the Russian physician, Schachnowitz, in 1882, and more in detail by Westphal in 1885. Only about eighty to ninety cases are on record. It has been chiefly observed in Russia and Germany, and is most exceptional in Italy. Pastine records a case in a soldier, aged 30. His father,

an aunt, and two paternal uncles, his two brothers, a sister, and most of their children were similarly affected. His mother was immune. The paralytic attacks began at the age of 4 or 5 years. At first the lower limbs only were affected, and the attacks were of short duration and infrequent. Subsequently they became more extensive, of longer duration, and more frequent. Severe attacks, which lasted about a week, were followed by milder attacks lasting from a few hours to two days. The severe attacks began with a feeling of fatigue or weakness in the lower limbs; in two or three days the weakness became a more or less complete paralysis affecting not only the lower limbs, but also the trunk, upper limbs, and in part the muscles of the neck and face, tongue and pharynx, and was accompanied by profuse sweating. The tendon reflexes were not abolished, but considerably diminished. The muscles showed reduction of galvanic and faradic excitability. The paralysis was most marked in the night and in the morning. In a few days it began to diminish from the arms downwards, the sweating entirely ceased, and the patient resumed his normal state. In the mild attacks the lower limbs and trunk were chiefly affected. The muscles of the head escaped, and there was no sweating. The sweat and urine during the attacks contained acetone, which disappeared as the paralysis extended, and was replaced by an abundant sediment of earthy phosphates.

J. D. ROLLESTON.

SOME NOTES ON THE CASE AND POST-MORTEM EXAMINA-
(325) **TION OF A MICROCEPHALIC IDIOT — ABSENCE OF CORPUS CALLOSUM.** G. N. BARTLETT, *Journ. Ment. Sci.*, 1918, Jan., p. 65.

A MICROCEPHALIC idiot with double squint, degenerate habits, and an uncontrollable temper, exhibited post-mortem complete absence of the corpus callosum, with a very small brain and attenuated viscera generally.

H. DE M. ALEXANDER.

A FURTHER STUDY OF MENTAL CONTENT IN EPILEPSY.
(326) L. PIERCE CLARK, *Psychiatric Bulletin*, 1917, Oct., p. 483.

IN previous studies the author has shown that the defective make-up in many essential epileptics is composed of egocentricity, supersensitiveness, and a consequent emotional poverty. Such individuals, under undue stress, become pronouncedly epileptic whenever they fail to make the proper life adaptations. The fit in itself is a regressive as well as a protective phenomenon. In the present paper an attempt is made to illustrate by concrete examples, first, the regression from stress by fits, and second, the

fragments of the mental content which may be obtained during the milder type of seizures, because the latter may show the depth of regression which the epileptic takes. Stress is laid on the narrow, pedantic attitude of the epileptic himself in regard to his disorder, and it is asserted that the attacks are often desired because they release the individual from the extra nervous tension he feels when a free period longer than usual intervenes, and "in not a few instances one finds epileptics who actually say they take pleasure in having seizures." Now and then very unique cases are encountered in which patients consciously encourage the attacks because the state is pleasurable. A most interesting analysis is given of a series of eight cases. On the basis of his material the author asserts that the mental content in epilepsy proves that the epileptic regresses from the displeasurable difficulties of life, and in the first stages of the fit the stress alone may be discovered: whenever the patient reaches a deeper unconscious state, he gains the level of an easily recognised sexual striving. The basic idea in making thorough analyses of cases of epilepsy is to determine the defective make-up and its specific conflicts, to bring into the patient's mind a better insight into his malady, and thus cause him to see the sequence and consequence of his crude handling of life.

D. K. HENDERSON.

EPILEPSY AND THE DUCTLESS GLANDS. GUY P. V. PRIOR and (327) S. EVAN JONES, *Journ. Ment. Sci.*, 1918, Jan., p. 30.

TWO extensive tables are given showing the symptoms and pathological effects of insufficiency or removal, action or overaction, of the pituitary, parathyroid, thymus, and suprarenal glands, culled from various authorities; good photographs of cases of apituitarism associated with epilepsy; the results of microscopic examination of the endocrine glands of epileptics; and a further extension of the author's previous papers on the chemistry of the urine in epilepsy. (*Cf. Review*, 1917, xv., p. 34, and p. 198).

The paper places on record the results of much work; but the cases of epilepsy in which these glandular extracts were administered were few in number; and, moreover, the simultaneous administration in many cases of other drugs (calcium lactate and the bromides) renders the results somewhat difficult of interpretation.

Epileptic convulsions may occur with apituitary, hypo- and hyper-thyroid, hypo- and hyper-suprarenal, and aparathyroid conditions. All the endocrine glands play an important part in the calcium metabolism. In apituitary, hypo-suprarenal, and aparathyroid affections there is an increased loss of calcium from the tissues; but "it is difficult to understand why an over- and an

under-action of the suprarenal gland can both cause convulsions when calcium retention is associated with over-action of the gland. The subject is full of difficulties, and not at present capable of explanation."

The authors conclude by asserting that "except in cases of apituitarism and marked cases of aparathyroidism, it is not possible to give definite indications as to which gland will be useful in any given case."

A full bibliography is appended. H. DE M. ALEXANDER.

ON THE MECHANISM OF CONVULSIVE PHENOMENA AND
(328) **ALLIED SYMPTOMS.** C. MACFIE CAMPBELL, *Johns Hop. Hosp. Bulletin*, 1917, Oct., p. 318.

CAMPBELL shows how in studying "convulsive phenomena and allied symptoms" it is best to get away from the habit of applying a formal neurological viewpoint, and rather to think in terms of the modes of reaction of living organisms. He gives examples of a serious of illustrative cases, and shows how in each case the problem is: "How far can we deal adequately with the symptoms in merely physiological terms; how far must we take into consideration the instinctive and emotional patterns of reaction; to what extent are the complex factors of the subconscious and the conscious life involved in the development of the symptoms?" Treatment must take into consideration the formation of habits, the regulation and assimilation of the instinctive and emotional life, the forces involved in the interplay between the subconscious and conscious realms. D. K. HENDERSON.

THE INFECTIVE FACTORS IN SOME TYPES OF NEURAS-
(329) **THENIA.** W. FORD ROBERTSON, *Journ. Ment. Sci.*, 1919, Jan., p. 16.

IN the opinion of the author, trauma (mental or physical) as a cause of neurasthenia is much exaggerated, and many of the morbid conditions attributed to it are due primarily to chronic bacterial infections.

Many pathogenic bacteria, which in orthodox teaching are regarded as anærobes, refuse to grow unless fairly strict anærobic conditions are provided for them—this applies to the *micrococcus catarrhalis*, the three varieties of pneumococci, the *streptococcus fæcalis*, *streptococcus pyogenes*, and neurotoxic diphtheroid bacilli.

It is essential to use both anærobic methods in the bacteriological investigation of such cases, and hæmoglobinagar as a culture medium.

The methods of focal reaction and therapeutic minimisation furnish trustworthy evidence as to whether a particular organism isolated from a case is acting as a pathogenic agent or not.

These chronic infections may be due to the bacillus of influenza, a pneumococcus, the *streptococcus pyogenes*, the *streptococcus fæcalis*; but above all (forty-nine out of sixty-six cases) to certain bacilli (anærobic) of the diphtheroid group (found especially in the urine and stools).

Recovery, or improvement, after therapeutic immunisation followed in the majority of the cases. H. DE M. ALEXANDER.

THE EMOTIONAL CONSTITUTION. (La constitution émotive.)
(330) DUPRÉ, *Bull. de l'Acad. de Méd.*, 1918, lxxix., p. 286.

SEVERAL years ago Dupré gave the name of emotional constitution to a special form of disequilibrium of the nervous system, characterised by a diffuse irritability of the general and special senses, and of the psychical sensibility, by an insufficiency of motor reflex and voluntary inhibition, and manifested by reactions which were abnormal in their degree, diffusion, duration, and lack of proportion in relation to the causes which produced them. Excessive emotionalism which is normal in the infant, and very frequent in the child, disappears in the adult by the progressive development of the paths of inhibition which control the equilibrium and stability of the nervous system. Morbid emotionalism is usually constitutional and hereditary, but it may be acquired, and results from pathological causes of an infective, toxic, and above all, a traumatic nature, such as commotion, and intense and repeated emotions. Emotion often renders the nervous system particularly sensitive to subsequent emotions, and by a sort of emotional anaphylaxis may produce constitutional emotionalism. In contrast with these cases, well-balanced subjects may become progressively inured to a whole series of emotions, and thus acquire an emotional immunity by the actual repetition of the emotional shocks. The emotional constitution is characterised by a series of physical and psychical signs. The physical signs are diffuse exaggeration of all the reflexes, hyperæsthesia of the special senses, lack of motor equilibrium, including the various forms of emotional tremor, transient inhibition of various functions, loss of circulatory, glandular, and thermal equilibrium, and disturbance of the inter-visceral reflexes. The psychical signs are impressionability, restlessness, anxiety, irritability, and impulsivity. Constitutional emotionalism is frequently associated with other neuropathic states, from which, however, it must be definitely distinguished. J. D. ROLLESTON.

A CASE OF PORENCEPHALY. H. E. Bond, *Journ. Ment. Sci.*, 1918, (331) Jan., p. 64.

The author reports the case of a congenital epileptic with right cerebral hemiplegia, in which post-mortem there was found in the left cerebrum, from the anterior to the posterior pole, a well marked smooth cavity with the remnants of the choroid plexus, and with a complete absence of the basal ganglia or any other vestige of brain matter. H. de M. Alexander.

THE SYMPATHETIC TONUS IN SCIATICA. (Il tono simpatico negli sciatici.) V. M. Buscaino, *Riv. di Patol. nerv. e ment.*, 1918, (332) xxiii., p. 175.

Examination of cases of true sciatica showed the following disturbances of sympathetic innervation:—(1) Ocular sympathetic. In 17 cases there was inequality of the pupils, the pupil being more dilated on the affected side in 11 cases, and on the sound side in 6. (2) Cardiac sympathetic. In 28 cases there was tachycardia, and in 33 increase in the tonus of the sympathetic was shown by abolition or inversion of the oculo-cardiac reflex (*v. Review*, 1918, xvi., p. 126). On the other hand, in cases of pseudo-sciatica, symptoms of abnormal sympathetic innervation were very seldom found. Buscaino concludes that the sympathetic signs described, especially tachycardia and inversion, or abolition of the oculo-cardiac reflex, may serve as valuable objective signs in deciding on doubtful cases of sciatica.

J. D. Rolleston.

ON THE SYMPTOMATOLOGY OF SCIATICA. (Zur symptomatologie der ischias.) P. Liebesny, *Med. Klinik.*, 1918, xiv., p. 858. (333)

Liebesny describes a new sign which he regards as characteristic of sciatica. It consists in the presence of a homolateral or contralateral cremasteric reflex when the leg is abducted and extended, so as to stretch the sciatic nerve. Liebesny found this sign present in 97 out of 102 cases of sciatica. In 4 it was indistinct, and in 1 there was no cremasteric reflex at all. On the other hand, he failed to find it in normal persons, and in more than 1,000 cases of other diseases or injuries of the legs such as muscular or articular rheumatism, or hip disease.

The physiological explanation of the reflex appears to be as follows: Sciatica is a neuralgia which affects the sciatic nerve and its branches, and occasionally involves other roots of the lumbo-sacral plexus. The cremasteric reflex is due to the action

of the ilio-inguinal nerve, which is also derived from the lumbo-sacral reflex. Every reflex requires a sufficiently strong stimulus to produce it. In the sciatic-cremasteric reflex the stimulus is not present normally, and consequently the reflex is not elicited, whereas sciatica increases the strength of the stimulus, and therefore the reflex can easily be obtained in these cases.

J. D. ROLLESTON.

HEREDITARY GLIOMA OF THE RETINA. HILL GRIFFITH, *Brit.* (334) *Journ. of Ophthalmol.*, 1917, Sept., p. 529.

TRANSMITTED glioma is a rare occurrence. The author gives notes of two families. In one the mother, aged 22, had her right eye removed at the age of 9 months for glioma. Of her six children, not counting one still-birth, four had double glioma, and died, two from the tumour, one from measles, and one from broncho-pneumonia. In the second family the first child was still-born, the second has lost one eye from glioma, the third is similarly affected, and the fourth has had both eyes removed. The mother had her right eye removed for glioma at two and a half years.

The present writer has recently seen a family in which the father had his left eye removed for a tumour when six months old. The first child was still-born, the second developed glioma in each eye, and died of broncho-pneumonia, the third died of extensive tumour growths in the head and body following bilateral glioma. It is to be noted that in two of these families the first child was still-born, and in one the fifth. H. M. TRAQUAIR.

INJURY TO THE EYE COMPLICATED WITH ABSCESS OF THE
(335) **BRAIN, AND TERMINATING FATALLY; AUTOPSY: TWO CASES.** G. VICTOR MILLER, *Brit. Journ. of Ophthalmol.*, 1917, i., Dec., p. 751.

1. A BOY of 9 years was kicked over the right eye at football. Four days later he became ill, and was admitted to hospital, where he became rapidly worse, and died eight hours after admission. There were no symptoms to suggest a serious illness up to two hours before death. Post-mortem, a fracture of the cribriform plate of the ethmoid was found, with an abscess as big as a Tangerine orange affecting the inferior parts of the anterior cerebral lobes.

2. A girl of 6 was struck in the eye by a stick. Only a small tear in the plica semilunaris was visible. Three days afterwards there was orbital cellulitis. The same night convulsions and Cheyne-

Stokes breathing occurred. On the sixth day pus was evacuated from the orbit, but aphasia and paralysis of the left arm were present. A trephining operation over the right Rolandic area failed to find pus. A month after the injury the trephine wound was re-opened, and a large quantity of pus evacuated. Improvement followed, but cerebral hernia developed, and death occurred four months after the original injury. Post-mortem, a very extensive abscess of the right frontal lobe was found, but no fracture of the orbital plate of the frontal bone or of the ethmoid. The author indicates the advisability of free and early incisions into the orbit where cellulitis is expected. If the skull is opened, it should be opened as near the injury as possible.

H. M. TRAQUAIR.

THE NYSTAGMI AND NYSTAGMUS-MYOCLONUS. (Les nystag-
(336) **mus et le nystagmus-myoclonie.)** E. AUBINEAU and E. LENOBLE, *Arch. d'Ophthalmol.*, 1918, xxxvi., No. 3, p. 163.

THE writers recognise three varieties of nystagmus:—(1) Those of ocular origin; (2) labyrinthine nystagmus; and (3) those due to lesions of the central nervous system, such as lesions of the corpora quadrigemina, thalamus, restiform bodies, or cerebellum, or those accompanying disseminated sclerosis, Friedreich's ataxy, Marie's heredo-cerebellar ataxy, or hysteria. The special variety which they call "nystagmus-myoclonus" is not of labyrinthine origin, and it has to be separated from ocular nystagmus. Thus one must exclude the presence of strabismus; there must be complete functional and anatomical integrity of the eyes; no marked ametropia; no objective lesion; no diplopia; control of binocular vision by the diploscope. This nystagmus-myoclonus is sometimes present in heredo-cerebellar ataxy. The reasons for the inclusion of this variety of nystagmus among the myoclonus group are these:—(1) Necropsies have hitherto failed to reveal lesions of the nerve-centres; (2) it does not consist of regular rhythmical oscillations of the eye-balls, but of irregular clonic shocks, sometimes of re-bound type (as in labyrinthine nystagmus), sometimes undulatory, changing in amplitude every moment, varying at each examination, and sometimes even in the course of a single examination; (3) because it may be accompanied by fibrillary contractions of the orbiculares palpebrarum or by clonic contractions of neck-muscles; (4) because its congenital, hereditary, and familial character indicates a degenerative state which is the common character of the myoclonus group (Raymond).

LEONARD J. KIDD.

THE SUGAR-CONTENT OF THE CEREBRO-SPINAL FLUID. THE
(337) **SEMEIOLOGICAL VALUE OF HYPERGLYCORACHY. (Le dosage du sucre du liquide céphalo-rachidien. Valeur séméiologique de l'hyperglycorachie.)** MATHIEU-PIERRE WEIL, *Compt. Rend. Soc. de Biol.*, 1918, lxxxi., 13 Avril, p. 364.

OF all the disturbances of the cerebro-spinal fluid, the modification of its sugar-content is the most sensitive: it precedes all others, especially the appearance of cellular elements and hyperalbuminosis. Hyperglycorachy is the first manifestation of a meningeal reaction. The estimation of the amount of sugar should be made very quickly after collecting the spinal fluid. If left by itself the fluid easily becomes infected, and germs, which are very partial to glucose, diminish the sugar percentage of the fluid. Also, if left to itself, a fluid rich in cellular elements, especially polynuclears, can become richer in sugar, possibly by setting free the pentoses (?) of its nucleo-albumens. Therefore, if rapid examination be impossible, not only must the spinal fluid be sterilised, but also freed from cellular and microbic elements by the electrical centrifuge and purification. For sugar estimation, only non-hæmorrhagic spinal fluids must be examined; but the writer thinks that it is possible, without serious error, to utilise clear fluids in which centrifugation shows the presence of a small number of suspended red corpuscles. He uses either Grimberg's or Bertrand's method: the latter is very sensitive (details of technique are given); a modification of the latter method is described. The normal amount of sugar in the spinal fluid varies from 0·46 to 0·52. Forty or less, or sixty or more, are pathological. In all patients suspected of simulating a nervous lesion, the sugar should be estimated. Hyperglycorachy can reveal an organic affection when a complete physical examination, including the ordinary spinal fluid methods, has failed. In many cases of nervous disease its presence proves involvement of the lepto-meninges. The writer has found it in four cases of dementia præcox, and also in many lesions of the central and the peripheral nervous system. It is of special value in showing the presence of meningeal congestion.

LEONARD J. KIDD.

THE NATURE AND INTERPRETATION OF THE COLLOIDAL
(338) **GOLD REACTION.** KARL M. VOGEL, *Archives Internal Med.*, 1918, xxii., p. 496.

THE colloidal gold reaction is the most sensitive indicator we have of pathological changes in the spinal fluid; the globulin reaction closely approaches it in delicacy.

Uræmia, neurasthenia, serous meningitis, hemiplegia, and chronic alcoholism may give a curve in the syphilitic zone. If

the gold reaction is negative, it is highly probable that the spinal fluid Wassermann will also be negative.

An important application of the gold reaction is in the recognition of the earliest stages of cerebro-spinal syphilis, and its routine employment in all syphilitics is to be recommended as an aid in the prophylaxis of the parasyphilitic diseases.

A. NINIAN BRUCE.

PSYCHIATRY.

APHASIA IN RELATION TO MENTAL DISEASE. R. PERCY (339) SMITH, *Journ. Ment. Sci.*, 1918, Jan., p. 1.

THE alienist may be called in consultation for the following reasons in cases where there is aphasia:—

1. Because of the confused or incomprehensible speech of the patient, and other conduct suggesting confusion or disorder of mind—more especially so where there is no hemiplegia, but also occasionally in cases where there has been a transient hemiplegia, or some slight right-sided paralytic signs or unrecognised hemianopia. Such patients may be found wandering and unable to give any account of themselves, and are regarded at first as being demented.

2. Because of definite signs of mental disorder predominating over the aphasic speech troubles. Previous insanity may have occurred and been recovered from, and the aphasia may occur in association with a mental relapse, or be masked by amnesia, confusion, or apraxia. Persecutory ideas, temporary excitement, delusions and hallucinations may come on immediately after a stroke.

3. To decide on the proper care of patients with aphasia plus disorder of mind and conduct.

4. To assist in forming a prognosis in the diagnosis from other organic conditions, such as general paralysis.

5. To give an opinion as to the business or testamentary capacity of an aphasic, or of his responsibility in criminal cases.

6. The aphasic may personally request an opinion as to why there is difficulty in writing letters and getting "command of words," and may want to know the outlook for the future.

During thirty years the author had forty-five cases of aphasia associated with mental disorder.

The average age of the non-syphilitic males was 62, and of the syphilitic cases 47. The average age in women was 62, and none were syphilitic. Valvular or degenerative heart disease was present in 26 per cent. (men) and 22 per cent. (women). Renal disease: 26 per cent. (men); 11 per cent. (women). Glycosuria in

one of each sex. Arterio-sclerosis, 29·6 per cent. (men); 17 per cent. (women). Alcoholism, 26 per cent. (men); 17 per cent. (women). Many of the above factors were combined.

Definite right hemiplegia was present in 18 out of 27 cases in men. One male presented left hemiplegia, but had had formerly right hemiplegia with aphasia ending in recovery, with post-mortem evidence of old syphilitic arteritis of the left middle cerebral. Ten women out of 18 had right hemiplegia either early or late in the case—in no case was left hemiplegia immediately associated with aphasia. A family history of insanity, neuroses, or alcoholism occurred in 33 per cent. of the men and 39 per cent. of the women. Previous attacks of insanity had been present in 3 cases, but in many mental disorder or failure was present for some time before the onset of definite aphasia.

The author divided his cases of aphasia with mental disorder into four groups, viz. :—

1. Those in which dementia, or mental disorder, or failure sometimes amounting to certifiable insanity, preceded the aphasia. Here, from their age, and the association of cardiac, arterial, or renal changes, some cortical degenerative change, with deficient blood supply, may be assumed, the onset of aphasia marking a more definite change in some part of the speech areas.

2. Those in which considerable mental failure was concurrent with, or subsequent to, an attack of aphasia. Coma occurring in severe cases. This group illustrates the diverse ways in which aphasia may show itself. Apraxia, always associated with agraphia, occurred in eight cases, and none of them had definite right hemiplegia.

3. Here, in spite of severe affection of speech, the patient possesses internal language and a degree of mental capacity as to permit of business or testamentary capacity. Every case must be considered on its own merits, the question being—"Can this aphasic person make a will?" (Hughlings Jackson). A record should be kept in these cases of the questions, the patient's answers, and associated gestures and emotional emphasis.

4. Cases in which there is some slight hampering of speech with very little mental disorder, although some may be present.

Several examples are given of cases illustrating the above groups. H. DE M. ALEXANDER.

THE REFORM OF THE TREATMENT OF MENTAL DISORDERS.

(340) G. ELLIOT SMITH, *Journ. State Med.*, 1918, xxvi., Sept., p. 267.

PROBABLY 50 per cent. of the patients who are admitted to British asylums to-day would have been spared this ignominy (not to mention the enormous saving of financial and social

resources which the rapid expansion of costly asylums represents in its merely material aspect) if we had done as many other nations have done long ago, *i.e.*, provided facilities for the skilled treatment of mental disturbance in its early and curable stage, and so spared a large number of such patients the fate of being branded as madmen and being sent into asylums.

In England the community treats the sufferer well, when, *but not* before, he has become a lunatic. In the early stages it does nothing for him beyond placing every possible obstacle, legal and social, in the way of his treatment. In other words, it tells him in the most brutal fashion to wait until his trouble becomes serious enough to be legally certified as undoubted insanity. Then, when the precious opportunity of giving him real help has been lost, it makes him as comfortable as possible. Reform of this deplorable state of affairs has been urged in season and out of season for more than half a century, but in vain. The war has shown almost all families in Great Britain that many forms of mental disturbance are merely the temporary results of intense and prolonged emotion, and that intelligent treatment in suitable hospitals does help in restoring such patients to a normal condition of mind and body. It has also prepared such people to recognise the fact that the accidents, worries, and anxieties of civil life can produce similar effects, which can be treated with success by similar measures. Thus the time is ripe for the amendment of the Lunacy Law to make such relief possible, and for impressing upon the national and the county authorities the vital need for this great measure of preventive medicine, which can be secured by providing proper facilities, in the form of hospitals for the enlightened treatment of patients suffering from early mental disturbance.

A. NINIAN BRUCE.

SOME EXPERIMENTS ON TREATMENT OF DEMENTIA PARA-
(341) **LYTICA WITH SUBDURAL INJECTIONS OF NEOSAL-VARSAN**. GEORGE E. SHRODER and HJ. HELWEG. *Journ. Ment. Sci.*, 1919, Jan., p. 24.

THE authors having found that neosalvarsanised serum (following injections of 45-60 cgm. of neosalvarsan) could not be proved to contain the least arsenic (traces of arsenic were only found in a sample of blood after the injection of 75 cgm.), then injected 0·45-0·60 cgm. neosalvarsan in 20 c.m. distilled water subdurally through a trephine opening 10-12 c.m. above the temporal end of the arcus zygomaticus. The injections were repeated after an interval of two to four weeks, and the largest number of injections given to any patient was five.

The results, on the whole, were not encouraging, but the

number and duration of remissions which occurred under this treatment were greater than the spontaneous remissions seen in untreated cases of the disease.

In four of the cases a continuing paresis of the arm (sometimes also of the leg) occurred after the injections from a local leptomeningitis. This can be avoided by using the neosalvarsan in more dilute solution. H. DE M. ALEXANDER.

PRELIMINARY NOTE ON THE RESPONSE TO CALCIUM SHOWN IN MANIACAL STATES. T. C. GRAVES. *Brit. Med. Journ.*, 1919, April, p. 406.
(342)

ACTING on deductions drawn from physiological observations, the author administered calcium lactate (in doses of 10 grains) along with meals, to persons suffering from various degrees of excitement.

Alleviation of the acute mental symptoms of mania, agitated melancholia, and confusional states became evident within twenty-four hours.

The addition of calcium to the diet of these patients had also a decided tonic effect on the circulatory system.

H. DE M. ALEXANDER.

THE PSYCHOSES OF INFLUENZA. Sir GEORGE H. SAVAGE, *Practitioner*, 1919, vol. cii., p. 36.
(343)

MENTAL disorder, as a result of the fever, the toxin, or from these two causes combined, is more common with influenza than with any other fever. Typhoid fever takes second place.

The predisposing causes are: neurotic heredity, early youth, the climacteric, the puerperium, old age, alcoholism (the most dangerous complication), and syphilis (in which the onset of tabes and general paralysis may be precipitated).

Psychoses of a delirious or semi-delirious type may occur without any marked increase of temperature, and may start quite early, or may not arise until even during a period of apparent convalescence.

Influenza may originate any form of insanity. The delirium (especially in alcoholics) associated with high fever, may pass into acute delirious mania, and this latter affection may ensue in puerperal and surgical cases (after operation) with little rise of temperature.

Melancholia (with marked insomnia), confusional insanity, stupor, manic-depressive insanity (a previous mental attack predisposes to this form), and paranoia (the delusions being often initiated by the loss of taste and smell) may all occur. The danger of suicide in all melancholic cases is a very real one.

Moral, as apart from intellectual deterioration, may be observed after influenza.

There is no evidence of the detection of the influenza bacillus in the higher nervous tissues (Mott).

In cases of existing insanity an attack of influenza produces no amelioration of the mental symptoms. In epileptics the onset of influenza may increase the number of fits.

Speaking generally, the mental disorder associated with influenza is of a favourable type, and requires stimulating treatment; but not infrequently dementia may be the final result.

H. DE M. ALEXANDER.

A STUDY OF RETENTION IN KORSAKOFF PSYCHOSIS. DAVID
(344) WECHSLER, *Psychiatric Bulletin*, 1917, Oct., p. 403.

THE retention defect in the Korsakoff psychosis may be studied both in regard to its extent and its nature. The term retention is used to mean the ability to reproduce new impressions after a given interval of time. This may be due to a defective perception or apprehension; to a failure to link new associations with old; to an inability of reproduction. The author feels that his observations warrant the conclusion that retention defect in Korsakoff psychosis is due to the patient's inability to form new associations. The experiments were performed with six patients, five Korsakoffs and one general paralysis patient. Of the Korsakoff patients two were mild, three were more pronounced, but none of them were in the acute stage. Detailed clinical summaries of all the cases are given, and the experimental work is carefully detailed.

D. K. HENDERSON.

THE INSANE PSYCHONEUROTIC. LAWSON GENTRY LOWREY, *Amer.*
(345) *Journ. Insan.*, 1918, July, p. 53.

IN this paper a series of ten cases is reported with the idea of showing the difficulties of distinguishing between psychoneuroses and psychoses, between sanity and insanity. The author's cases have not been specially well chosen, but they do serve to show how many cases of the psychoneuroses show certain psychotic symptoms, how frequently they tend impulsively to become suicidal, and how necessary it is in every mental case to make a thorough analysis of the entire life of the individual.

D. K. HENDERSON.

THE PATHOLOGY OF CHOICE REACTIONS. F. L. WELLS and
(346) H. A. STURGES, *Amer. Journ. Insan.*, 1918, July, p. 81.

THE choice reaction is a reaction adjusted to a discriminated stimulus. Proper choice reactions in life are implied in proper

adaptation thereto. The question underlying this study was—How are superior quickness and appropriateness in choice reaction processes which can be studied experimentally related to the choice reactions of life, which have thus far eluded experimental control? Success, usefulness, happiness are results of choice reactions called good, well-adapted, correct. Discontent, failure, mental disease are expressions of bad, ill-adapted, false systems of psychomotor adjustment. This study is a comparison of the choice reaction process in normal individuals and in mentally diseased ones. How do laboratory adaptations of those well adjusted to life compare with those reactions in persons thus badly adjusted to life?

Owing to the highly technical and detailed experimental nature of the paper it does not lend itself to an abstract, but the main result arrived at is to the effect: That these pathological groups *e.g.*, manic-depressive insanity and dementia praecox, are not constitutionally different from the normal on the psychomotor level: the departures from the normal which are seen may, with reasonable probability, be related to symptomatic features of the disorders. D. K. HENDERSON.

MORAL SANITY. (The Rev.) J. G. JAMES, *Journ. Ment. Sci.*, 1918, Oct., (347) p. 377.

MENTAL and moral sanity are closely allied, and in this paper the author indicates the similarity between the psychotherapy used by the alienist in his attempt to accomplish the former, and the "moral suasion" employed by the pastor or priest in his efforts to induce the latter. H. DE M. ALEXANDER.

A STATISTICAL VIEW OF MENTAL DISEASES IN THE NEW YORK STATE HOSPITALS. (348) H. M. POLLOCK, *Psychiatric Bulletin* 1917, Oct., p. 452.

THIS study is based on the census as reported by the thirteen state hospitals, and on the statistical data cards of admissions, discharges, and deaths submitted by the hospitals during the fiscal period of nine months ending 30th June 1916. Of 35,213 patients under treatment on 1st July 1916, 3·83 per cent. were seniles; 3·76 per cent., cases of general paralysis; 4·68 per cent., cases of alcoholic insanity; 6·84 per cent., cases of manic-depressive insanity: 3 per cent., cases of allied to manic-depressive insanity; 53·81 per cent., cases of dementia præcox; 3·5 per cent., cases allied to dementia præcox; 4·66 per cent. paranoics; 3·58 per cent. epileptic insanity; 3·7 per cent., cases of mental deficiency with psychosis. The remaining 8·63 per cent. were scattered among sixteen other groups.

A marked difference appeared in sex distribution in the various clinical groups. The traumatic group comprised 47 males and 4 females. The senile group included 445 men and 902 women. In the syphilitic groups the excess of males is very marked. The alcoholic group showed 1,114 men and 535 women. In the manic-depressive and allied to manic-depressive groups there were 1,180 men and 2,284 women. Of the 35,213 patients in the hospitals, 16,252 were males, and 18,961 females. The overshadowing prevalence of dementia præcox is the most striking fact shown, but patients of this group only constitute about 19 per cent. of first admissions. In the hospital system as a whole during the nine months under consideration there was a monthly rate of admission of 691, of discharges of 316, and of deaths of 280. The monthly rate of accumulation of patients in the hospitals was 95. D. K. HENDERSON.

OUGHT LIMITED RESPONSIBILITY TO BE RECOGNISED BY THE COURTS? CHARLES P. BANCROFT, *Amer. Journ. Insan.*, 1917, Oct., No. 2, p. 139.
(349)

IT is impossible to draw an exact line of demarcation between absolute responsibility, and complete irresponsibility. Gentle graduations, rather, will mark the transition between different mental mechanisms, and their final expression in conduct. A thorough analysis of each individual case is the only sure way of measuring the degree of responsibility. It is important to know in detail about the heredity and environment of the offender, but it is of much more importance to analyse his judgment, reasoning capacity, and will power. Bancroft shows by case and by argument how antiquated it is to have the same laws, and to apply the same standards to every type of individual, and he feels that the finding of a mental status involving responsibility, irresponsibility, and limited responsibility is based on rational psychology, and ought to be logically satisfactory to both the medical and legal professions.
D. K. HENDERSON.

PSYCHIATRIC PROBLEMS AT LARGE. A. J. ROSANOFF, *Amer. Journ. Insan.*, 1917, Oct., No. 2, p. 159.
(350)

THIS paper is a condensed summary of the work done in the survey of Nassau county, which has already been abstracted. Out-patient mental clinics, whereby psychiatric service could be brought closely into touch with the needs of the community, are strongly advocated. By so doing a register of cases of mental disorder would be obtained which eventually would prove valuable

in showing that the bulk of all crime, vice, dependency, and other social maladjustments in a given community is attributable to a comparatively small fraction of the population.

D. K. HENDERSON.

DEVELOPMENT OF THE PERSONALITY. E. G. CONKLIN, *Amer.* (351) *Journ. Insan.*, 1917, Oct., No. 2, p. 123.

AN introductory address delivered at the seventy-third annual meeting of the American Medico-Psychological Association. The subject is dealt with in general terms. Heredity and environment are the causes of development, and of these heredity is the more important, as it determines all the possibilities of development and all its main results, whereas environment serves chiefly to modify these results. The development of the human personality is the most complex thing in all the world, and in regard to it "we are as children in the morning of time."

D. K. HENDERSON.

A WIDER FIELD OF ACTIVITY FOR THE ASSOCIATION. JAMES (352) V. MAY, *Amer. Journ. Insan.*, 1917, Oct., No. 2, p. 129.

WITH a view to influencing legislation, and of encouraging and assisting State hospitals in maintaining a high standard, it was proposed that all managers and trustees of State hospitals for the insane, all members of commissions and boards of control, should be elected, *ex-officio*, as active members of the Medico-Psychological Association. In the ensuing discussion the trend of opinion was adverse to the above proposal. D. K. HENDERSON.

HISTORICAL PATHOLOGY: THE CASE OF KING LOUIS XI. (353) **OF FRANCE.** CHALFONT ROBINSON, *Amer. Journ. Insan.*, 1918, July, p. 155.

THE writer of this paper is the Assistant Professor of History in Princeton University; his article is based on a study of Brachet's "Pathologie Mental des Rois de France." He shows the importance of devoting close study to the mental health of rulers, so as to determine whether certain actions call for a pathological or a political explanation. He takes as an instance the reign of King Edward the Second of England. While he was on the throne the barons took away his power; his wife left him; and England was in a condition of confusion hard to explain. When it was made clear from the chroniclers that King Edward was a hereditary degenerate, the unexplained incidents found a ready and satisfactory solution.

A graphic account is given of the varied, bizarre, impulsive, strange conduct of King Louis, and a satisfactory attempt is made to explain it on the basis of the mental ailment from which Louis suffered. It is conclusively shown that Louis, in addition to being an epileptic, was a hereditary degenerate.

D. K. HENDERSON.

JAMES HENRY PULLEN, THE GENIUS OF EARLSWOOD. F. (354) SANO, *Journ. Ment. Sci.*, 1918, July, p. 251.

THE paper is prefaced by a description of the character and mental characteristics of Pullen, a deaf and dumb patient who was "made famous by the realisation of a childish programme, remaining all through in its limited frame as originally conceived, but progressively renewed and completed with all the skill and the experience that memory and maturity of age could bring about." He showed remarkable skill, tenacity, and originality in the various models he constructed. H.M. King Edward, when Prince of Wales, took a great interest in him.

He died in 1916 at the age of seventy-five. The author furnishes a detailed naked eye examination of the brain (senile deterioration was too advanced to allow of conclusions being drawn from microscopical examination).

The brain was small; its frontal and temporal lobes badly developed; there was a lack of complexity in the convolutional pattern, and this was especially marked in the speech centres. His deaf-mutism was central in origin. The parietal lobes were more normal; the occipital lobes were good; the corpus callosum was remarkable (its length exceeded the usual measurements, and probably resulted from reinforced hereditary tendency, his parents being first cousins), and "he was bound to have special capacity in the visual sphere of his mental existence."

Photographs of Pullen, of one of his model ships representing his idea of the universe, and detailed drawings illustrating the brain sulci, &c., are appended. H. DE M. ALEXANDER.

CLINICAL OBSERVATIONS ON THE VARIOUS STATES OF EXCITEMENT IN INSANITY. (355) R. M. TOLEDO, *Journ. Ment. Sci.*, 1918, July, p. 296.

THE author enunciates the differential diagnosis between the motor excitement of mania, confusional insanity, melancholia (agitated), dementia præcox, acute delirium, and refers to the excitement of senile dementia, alcoholic insanity, epilepsy, and chorea. H. DE M. ALEXANDER.

THE ÆTIOLOGY OF CRIME. CHARLES GORING, *Journ. Ment. Sci.*, (356) 1918, April, p. 129.

THIS paper is chiefly a reply from the Biometric point of view criticising a recent contribution by Sir Bryan Donkin on "Notes on Mental Defects of Criminals" (*v. Review*, 1917, xv., p. 206).

The paper is interesting. It is too lengthy for abstraction, and should be read in its entirety.

H. DE M. ALEXANDER.

EVOLUTION PROGRESS IN PSYCHIATRY: A PLEA FOR OPTI-
(357) **MISM.** HUBERT J. NORMAN, *Journ. Ment. Sci.*, 1918, April, p. 189.

THE paper consists of an historical survey of the progress of psychiatry from the earliest times to the present day, and does not lend itself to abstraction. H. DE M. ALEXANDER.

AN ECTROMELUS: AN ATAVISTIC RELAPSE. S. B. PAL, *Journ.*
(358) *Ment. Sci.*, 1918, July, p. 267.

DR F. E. BOLTON (as did also Emerson), in his paper, "Hydro-Psychoses" (water atavism), considers the hand of man is in shape and bones "more like the primitive amphibian paddle than is the limb of any other animal."

The author thinks the character of the limbs of his ectromelus patient (photographs, diagrams of the skeleton, and tables of measurement being reproduced in this paper) show a further relapse.

The upper extremity of this ectromelus resembles the fore-limb of the whale in being stunted, the bones of the fore-arm being arch-like, the palm being immobile, and in the phalanges (except the thumb) having no power of flexion or extension. The hind-limb of the whale is represented by a rudimentary femur and tibia, and in this ectromelus there are no fibula or metatarsal bones, and the phalanges consist of only one digit each without muscular attachment.

The family history of this patient could not be ascertained. He could easily walk a mile or so, and was independent of the help of others, or of any mechanical contrivance for eating, dressing, writing, or making a cigarette.

H. DE M. ALEXANDER.

CONCERNING PRISONERS. BERNARD GLUECK, *Mental Hygiene*, 1918,
(359) April, p. 177.

IN this paper an attempt is made to investigate why it is that the present system fails to turn out the inmates of prisons in a condition fit for freedom. A study of 600 consecutive admissions to

Sing Sing revealed the fact that 66·8 per cent. had already served one or more terms in prisons or reformatories prior to their present confinement. 59 per cent. of these cases had exhibited some form of nervous or mental abnormality, 12 per cent. were insane or mentally deteriorated, another 28 per cent. were intellectually defective, while 18·9 were classed as psychopathic. In the group of sexual offenders 70 per cent. were mentally abnormal. On the basis of these figures it is urged that more attention should be paid to the psychological and pathological factors in the make-up of the individual, and it is shown how the present treatment is much too routine to meet the demands of the situation. A series of illustrative cases is reported in detail, and by means of charts the individual factors in each case are discussed. It is pointed out that in handling criminal cases, one must have not merely a detailed knowledge of the offence, but also a knowledge of the prisoner's history, his limitations, and his possibilities for rehabilitation. The test of efficiency in the modern penal system is its success in turning out not model prisoners, but decent citizens. D. K. HENDERSON.

STANDARISED FIELDS OF INQUIRY FOR CLINICAL STUDIES
(360) **OF BORDER-LINE DEFECTIVES.** WALTER E. FERNALD, *Mental Hygiene*, 1917, April, No. 2, p. 211.

AN excellent paper based on the examination of 860 cases presumed to be feeble-minded. The following ten "Fields of Inquiry" were used to furnish a working basis for individual case study:—

1. Physical examination.
2. Family history.
3. Personal and developmental history.
4. School progress.
5. Examination in school work.
6. Practical knowledge and general information.
7. Social history and reactions.
8. Economic efficiency.
9. Moral reactions.
10. Mental examination.

The author believes that the difference between, say, a moron and an imbecile is quantitative rather than qualitative. Among the 860 cases, presumably feeble-minded, there were morons, idiots, cretins, epileptics, cases with mental disease rather than defect, and cases not feeble-minded, and others where further observation was necessary before a diagnosis could be made. This material is used to show how, although psychological tests of the

Binet type are exceedingly important and are of great assistance, that they must by no means be considered the whole story, and that it is very unwise to pass an opinion in a given case by using only the Binet psychological tests. The case should be weighed as a whole, and the examiner should possess wide psychiatric knowledge and experience. D. K. HENDERSON.

FEEBLE-MINDEDNESS AS SEEN IN COURT. V. V. ANDERSON, (361) *Mental Hygiene*, 1917, April, No. 2, p. 260.

MANY offenders profit by the lessons learned from arrest and detention, from judicial reprimand, and probationary treatment, but, in addition, there is a well-defined group of offenders who do not profit by the usual methods, who seem totally unable to adapt themselves to society's laws and customs, and thus are arrested over and over again. From 25 to 40 per cent. of cases in this latter group are feeble-minded. An analysis of the histories of 100 feeble-minded individuals, taken without selection, has been made. Sixty-eight per cent. of cases had never got beyond the fifth grade at school; 75 per cent. were not self-supporting; the average number of arrests was 18·25; the average number of times each was placed on probation was 4·32; the average number of penal sentences was 7·35; and 75 per cent. had attained only the mental level of children below ten years.

Our courts should not continue to commit to penal institutions offenders whose central nervous systems are so conspicuously undeveloped that adaptation to the conditions of normal life is impossible. D. K. HENDERSON.

A CITY SCHOOL DISTRICT AND ITS SUBNORMAL CHILDREN: (362) **With a Discussion of Some Social Problems Involved and Suggestions for Constructive Work.** C. MACFIE CAMPBELL, *Mental Hygiene*, 1918, April, p. 232.

IN this paper Campbell discusses some of the issues raised in the course of the survey of a school district in Baltimore, and the lines of further progress. He points out that it is not possible, by the use of any one test or series of tests, to be dogmatic as to the place of any individual child. Intelligence tests must only be used in the setting of the whole clinical picture of the child. In making such a survey it is important that the children should be studied by the field worker in co-operation with both the school teacher and the parent. By so doing both the teacher and the parent are stimulated to take a much broader outlook on their duties. Reference is made to a small class of children which was

supervised by the Psychiatric Clinic. Nearly all of these children had appeared in the Juvenile Court previous to their admission to this class; in the first year of their admission to the special class none of the children appeared in the Juvenile Court. The reason for the change was the fact that the children were being educated in the true sense, and were being taught to develop healthy interests and their native ability. The home conditions of each child were investigated, and where necessary were modified. Such a method is beneficial not only to the individual child but to the whole household. The author emphasises the necessity of the school nurse and school physician having some psychiatric training.

D. K. HENDERSON.

THE ADJUSTMENT OF THE JEW TO THE AMERICAN ENVIRONMENT. (363) A. A. BRILL, *Mental Hygiene*, 1918, April, p. 219.

IN this paper Brill attempts to explain the Jewish characteristics on the basis of their history of persecution, and he draws an interesting analogy between the Jews as "the chosen people," "the only son," and "the first born," and the only or favourite child. He shows how the difficulties encountered by the only or favourite child in adult life are in the spheres of hunger and love, and how his love life is glaringly poor, due to his abnormal attachment to his parents. Among orthodox Jews the word love in the western sense hardly exists, owing to the fact that the orthodox Jewish religion is so rigid about sex that a normal love outlet is hardly possible. The matter is summed up by his saying that both the only or favourite child and the orthodox Jew suffer from too many attachments of the past. An attempt is then made to show how the emotional or affective psychoses which occur so frequently in the Jewish race are especially due to the conflicts which arise in the attempt made by the orthodox Jews to get away from their orthodoxy, so that Judaism may be harmonious with American ideals. The author believes that it would be only logical to replace the orthodox teachers in schools by thoroughly Americanised Jewish ones.

D. K. HENDERSON.

BARRIERS TO THE TREATMENT OF MENTAL PATIENTS. (364) OWEN COPP, *Mental Hygiene*, 1918, April, p. 254.

IT is of importance in dealing with mental patients that the hospital idea should be emphasised, and that the patient should realise that his condition is capable of abreviation, cure, or amelioration. The imperative requirements of the situation are prevention by investigation and removal of causes; hospital

facilities for the best treatment and adequate curative effort: provision for early diagnosis and treatment, both through the family physician and through community agencies organised to minister to the needs of mental patients in their homes; occupational training and re-education as measures of treatment; resourceful and persistent endeavour to improve chronic mental conditions. The author shows how, in the State of Pennsylvania, there is a lack of unity and responsibility, and he urges the necessity for the State to control the whole situation. Legal requirements should be suspended for a limited period, during which the patient may receive shelter and suitable treatment pending the necessary legal formalities. The reception of such a patient should be safeguarded by requiring the certificate of a physician duly qualified as an examiner in mental or nervous affections. The duration of temporary care should be limited to a period probably not exceeding ten days. Voluntary admissions to mental hospitals should be encouraged to the limit of its possibilities. D. K. HENDERSON.

THE COMMUNITY VALUE OF THE OUT-PATIENT DEPARTMENT OF THE HOSPITALS FOR THE INSANE. JOHN B. MACDONALD, *Mental Hygiene*, 1917, April, No. 2, p. 266.

(365)

IT is exceedingly important to bring the State hospital—the hospital for mental disease—into close touch with the community. The establishment of out-patient clinics and social service departments in connection with these hospitals is tending to bring this about. In Massachusetts this work has been taken up by the various State hospitals in such a splendid way that virtually every part of the State has now its out-patient clinic for mental diseases. To give an idea of what is being accomplished, it will be sufficient to say that during July, August, and September 1915 over 1200 patients presented themselves at the clinics for medical advice, diagnosis, or in the case of discharged patients, to report on parole. Over 33 per cent. of this number were persons who had had no previous relation with the hospitals, but who came on their own initiative, or were referred by physicians, courts, schools, other hospitals, and charitable organisations.

Such a state of affairs is educational in the best sense. It reacts on the life and character of each community, and becomes instrumental not only in disseminating knowledge, but in the development of the community conscience.

D. K. HENDERSON.

SUBSIDISING MENTAL DEFICIENCY—THE "PAUPER IDIOT ACT" OF KENTUCKY. T. H. HAINES, *Mental Hygiene*, 1917, April, No. 2, p. 274.

(366)

AN historical document, with a criticism of present methods of care for feeble-mindedness in Kentucky. At the present time an allowance of £15 per annum is paid from the State treasury to the committee of each pauper idiot, a state of affairs which puts a premium upon having feeble-minded children, and by pensioning them favours further multiplication. D. K. HENDERSON.

EDUCATIONAL METHODS AND THE FUNDAMENTAL CAUSES OF DEPENDENCY. C. MACFIE CAMPBELL, *Mental Hygiene*, 1917, April, No. 2, p. 235.

(367)

CAMPBELL points out how a community that devotes its philanthropic interest to jails, reformatories, almshouses, foundling asylums, while neglecting the efficiency of its school systems, is really putting the cart before the horse. The children who in later life are going to recruit the ranks of the dependents, who are going to become loafers, vagrants, alcoholics, prostitutes, delinquents, have usually shown that they are candidates for these ranks before they are sixteen years of age. It is then shown how education should not be so much a matter of furnishing information, as of training in good habits, which will enable the adult to adjust himself adequately to his actual environment. No adequate steps can be taken in regard to dealing with this problem unless those responsible for the educational system represent a community which realises the fundamental importance of education, and looks upon its school system with jealous scrutiny. "The efficiency of the school system is a good measure of the moral and intellectual level of a community. . . . The school should have available the advice of a physician competent to give an opinion on the mental constitution of the individual pupil. With regard to the subnormal children, their education should be guided by the principle that their development is to be favoured by modifying the environment to suit their special needs. Manual training should largely replace the traditional emphasis on academic work. When the children present very serious degrees of mental defect the problem of course would arise whether these children should be trained in special institutions, in view of the necessity of close supervision even in adult life. . . . The subnormal child who leaves school is not missed, as a rule, by the teacher, is apt to be exploited by the parent and employer, and is considered an economic asset rather than an individual who presents difficult social problems." D. K. HENDERSON.

THE ECONOMIC LOSS TO THE STATE OF NEW YORK ON ACCOUNT OF SYPHILITIC MENTAL DISEASES DURING THE FISCAL YEAR ENDING JUNE 30, 1917. HORATIO M. POLLOCK, *Mental Hygiene*, 1918, April, p. 277.

(368)

THE census of patients in civil State hospitals on 1st July 1916 showed that there were 1325 cases of general paralysis, and 119 cases of cerebral syphilis resident in the hospitals. At the end of the fiscal year there were 1370 cases of general paralysis and 122 cases of cerebral syphilis. The total economic loss to the State on account of syphilitic mental diseases for the year is worked out as follows:—

Cost of maintenance of patients in institutions -	$471,918
Loss of earnings of males - - - -	4,652,942
Loss of earnings of females - - -	273,783
Total loss	$5,398,643

As practically none of these patients recover, and as death occurs on the average of within two years of the time of entrance into the hospitals, it would seem that everything possible should be done to check the ravages of syphilis. D. K. HENDERSON.

COMMUNITY RESPONSIBILITIES IN THE TREATMENT OF MENTAL DISORDERS. W. L. RUSSEL, *Mental Hygiene*, 1918, p. 416.

(369)

AN earnest plea for the State to become solely responsible for the care and treatment of the insane. Wherever State care has been adopted the result has been a better level of intelligence and humanity in dealing with the cases under institutional care. The best plan is probably to divide the State into districts containing not more than 500,000 inhabitants each, and to provide a State hospital for each district. The State hospital should not merely be looked upon as a place for custodial care, but it should be regarded as a social welfare agency and a centre of information. Out-patient departments should be started in various parts of the district where persons who wish advice concerning mental disorders may apply. Social workers should be employed to visit at their homes patients who have been discharged. Such contacts with the communities have an educational value, and by such means the State hospital may contribute to the management of mental disorders as they occur in the home, in the school, and in the commercial, industrial, and social life of the people.

In every large centre of population a department for nervous and mental cases should be provided in connection with the best general hospital. D. K. HENDERSON.

THE ORGANISATION OF A STATE HOSPITAL FOR MENTAL DISEASE. (370) H. DOUGLAS SINGER, *Mental Hygiene*, 1918, July, p. 426.

THE organisation provides for:—1. A reception division. 2. A division for acute cases. 3. An educational or reconstruction division. 4. A custodial or industrial division. 5. A hospital division. 6. An infirmary division for chronic organic cases. 7. A laboratory division.

Special emphasis is laid on the need for the "systematic industrialisation" of the hospitals for mental diseases, "for nothing is more detrimental to the patient, or more heart-rending to the observer, than the rows of idle, so-called dements who fill their chronic wards." D. K. HENDERSON.

SUPERVISION OF THE FEEBLE-MINDED IN THE COMMUNITY. (371) JESSIE TAFT, *Mental Hygiene*, 1918, July, p. 434.

STERILISATION and segregation of the feeble-minded are not adequate methods for dealing with the problem. Popular prejudice and sentiment are too strong ever to make the former practicable, and the latter method would be so expensive, and on the whole so unfair, that it would never be entirely successful. So far the feeble-minded have been judged by their intellectual standard, but it is just as important to judge them according to their emotional and impulsive make-up.

In order to tackle the problem we should determine (1) whether there is a class of people feeble-minded by intelligence tests that actually do get along in the world; (2) what real supervision can do to make the existence of certain feeble-minded individuals outside of institutions safe and economically advantageous to society; (3) to find how far the feeble-minded is innately vicious, and how far he is the result of prolonged maladjustment due to defective intellect, emotional training, and bad environment.

An excellent method of instituting supervision would be through the school. A mental clinic should pass on the mentality of every child entering the school, and should decide in regard to his industrial training after he leaves school. A social worker should supervise and guide the child in the home, and in whatever industrial or occupational work was taken up. By such methods the community would soon be educated in regard to the immensity and difficulty of the problem. D. K. HENDERSON.

THE NEXT STEP IN THE TREATMENT OF GIRL AND WOMEN OFFENDERS. JESSIE D. HODDER, *Mental Hygiene*, 1918, July p. 443.

(372)

REFORMATORIES receive within their walls epileptic, feeble-minded, psychopathic, hysterical, neurasthenic, and apparently normal women, and no attempt, so far, has been made to group the various types. A modern reformatory should be on the cottage plan to make such a grouping possible. Care and treatment should focus itself upon the psychiatric problems which are the predominating factors in the delinquent career of women.

D. K. HENDERSON.

CHARACTER AS AN INTEGRAL MENTALITY FUNCTION. GUY G. FERNALD, *Mental Hygiene*, 1918, July, p. 448.

(373)

INTELLIGENCE may be conceived as the thinking, selecting, deciding function of mentality, and character as the complementary function. Character then is the emotivating, instinctive, executing function of mentality, and as such it is integral. Of these two character is the valid determinant of personality behaviour; since what is done is more potent than what is planned. Innate intelligence defects are not remediable, though subjects of such make some slight improvement under favourable conditions and are in many cases capable of acquiring a certain proficiency in simple occupations under efficient direction. Character deviations, on the contrary, are at least susceptible of improvement under the direction of intelligence. The cases which lend themselves to character studies are adolescent, and young adult offenders, and dependents not mentally diseased nor deficient of the mental level of moronity. Each of these groups of children has an individual sociologic problem that will hardly be solved without psychiatric help. Propaganda restoration in these cases would best be directed to character reformation. Two illustrative case records are reported.

D. K. HENDERSON.

Reviews

ASPECTS OF DEATH AND CORRELATED ASPECTS OF LIFE IN
(374) **ART, EPIGRAM, AND POETRY. Contributions towards an anthology and an iconography of the subject.** Illustrated especially by medals, engraved gems, jewels, ivories, antique pottery, &c. F. PARKES WEBER, M.D., F.R.C.P., F.S.A. Third edition, revised and much enlarged. Pp. xl+784, with 145 illustrations. T. Fisher Unwin, Ltd., and Bernard Quaritch, Ltd., London. 1918.

THIS book is intended to be an essay on the mental attitudes towards death and immortality, and the various ways in which (from ancient Greek and Roman to modern times) they have, or may be supposed to have, affected the living individual—his mental and physical state, and especially the direction and force of his actions—as illustrated by epigram, poetry, and minor works of art, especially medals, engraved gems, jewels, &c.

The book is divided into four parts. The first is meant to serve as an introduction to the whole subject. The second is an arrangement and analysis of the various possible aspects of death, and the mental attitudes towards the idea of death; this also explains the headings under which illustrative works of art may conveniently be grouped. The third deals with medals and coins; and in the fourth engraved gems, finger-rings, jewels, representations on ancient pottery, &c., bearing on the subject, are described.

The study of human ideas of death derives most of its interest from human aspects of life. Most normal persons tend to look on death as something concerning their neighbours, friends, and others rather than themselves. Fear of death, if not excessive, is normal, and is doubtless often useful for the race as well as for the individual. Excessive fear of death ("thanatophobia") is abnormal and pathological, and serves no good purpose. The illustrations form a unique although somewhat gruesome collection.

PRINCIPLES OF GENERAL PHYSIOLOGY. WILLIAM MADDOCK
(375) BAYLISS, M.A., D.Sc., F.R.S. Second edition, revised. Pp. xxiv+858, with 261 illustrations. 1918. Longmans, Green & Co., London. Pr. 24s. net.

THE first edition of this work so completely fulfilled the requirements of a modern text-book of general physiology that it will be a surprise to no one that a second edition should be so soon necessary. On account of the war, the amount of new material

to be incorporated has not been large, and the task of revision has thus not been onerous. Considerable rewriting, however, has been required to bring properly up to date some aspects of the activity of muscle, of the kidney, and of the visceral nervous system, and a new section is included on the transport of carbon dioxide in the blood.

Physiology, according to Burdon-Sanderson, may be defined as "the study of the endowments of living material." Claude Bernard insisted on the fact that physiology, being the science of life, should be cultivated for its own sake, and not merely for its applications to the practice of medicine.

The organism develops and maintains its place, not by struggling against cosmic conditions, but by an adaptation to, and agreement with, these conditions. It thus forms a member of the universal concert of things, and the life of the animal is only a fragment of the total life of the universe.

The phenomena which make their appearance in a living being obey the same laws as those outside of it. All that can be said is, that up to the present no physico-chemical system has been met with having the same properties as those known as "vital," *i.e.*, none have as yet been prepared of similar complexity and internal co-ordination. The study of physiology thus is a question of the study of the physical and chemical processes which intervene in these phenomena, and it must be remembered that all the methods available for the study of vital processes are physical or chemical, so that even if there were a form of energy peculiar to living things, it could only be studied when converted into known forms of chemical or physical energy in equivalent amount. It is essential to realise that vital processes can only be investigated where they exist, namely, in the living organism, and "it is not going too far to say that the greatness of a scientific investigator does not rest on the fact of his having never made a mistake, but rather on his readiness to admit that he has done so, whenever the contrary evidence is cogent enough."

This text-book of physiology has already taken its place amongst the foremost of recent works on this subject. No medical library can be considered complete without it. The portraits of eminent physiologists—Pasteur has just been added to the series in this edition—forms a most pleasing feature of the book.

DISEASES OF THE NERVOUS SYSTEM. A text-book of neurology
(376) **and psychiatry.** By SMITH ELY JELLIFFE and WILLIAM A. WHITE. Second edition, revised, rewritten, and enlarged. Pp. xix + 938, with 424 engravings and 11 plates. Lea & Febiger, Philadelphia and New York. 1917.

THE authors begin by drawing attention to the fact that the classification set forth in the titles of so many of our text-books, namely, that they deal with nervous and mental diseases, infers that these two groups have little relation to one another or to the rest of the body. All this is wrong. The human individual is a biological unit, his several parts are parts of that unit, and he himself is a particular instance of the manifestation of life. Any system of classification should show these interrelations.

For practical purposes the nervous system may be divided into three levels of activity: the vegetative, the sensorimotor, and the psychic. The biological activities which maintain life at the lowest level are physical and chemical, and thus that portion of the nervous system which has direct controlling influences over these activities is designated the vegetative nervous system. A rich variety of disturbances are found in this region involving the glandular, gastro-intestinal, genito-urinary, vascular, respiratory, muscular, cutaneous, and bony systems, and, in addition, there are the complex clinical disturbances involving the glands of internal secretion. The next higher level, the sensorimotor, has as its function further integration by providing the means for the balanced interrelations of the various motor organs of the body. It has to provide for the harmonious working of all the different parts, and includes the disorders of the cranial and peripheral nerves, the spinal cord, medulla, pons, brain-stem, cerebellum, and cerebrum, and represents that portion of neurology to which the term "neurology" is generally exclusively applied. The third, the highest, the psychic level, is the most complex. Its function is no longer simply one of integration of the various parts of the individual, but at its conscious level it has to do not only with the relation of the individual as a whole to his environment, but more especially to his social environment. The hormone is the type of tool at the physico-chemical level, the reflex at the sensorimotor level, and the symbol at the psychic level. The hormone and the reflex are confined in their capacities for reaction within relatively narrow limits of possibilities. The symbol is capable of infinite change and adjustment. As long as the unconscious failed to be recognised, just so long was the gap between so-called body and so-called mind too wide to be bridged, and thus there arose the two concepts of body and mind.

The present volume covers the whole of these three levels,

one part being devoted to each. The first part, dealing with the vegetative nervous system and the endocrinopathies, has been entirely rewritten and expanded. The knowledge gained from the experiences of the present war has been incorporated, and the increasing importance assumed by mental adaptation under warfare conditions specially discussed. It is one of the best text-books on the subject at present available, and can be confidently recommended. The descriptions and illustrations are excellent. References to literature are few. There is a good index.

(377) **REST, SUGGESTION, AND OTHER THERAPEUTIC MEASURES IN NERVOUS AND MENTAL DISEASES.** FRANCIS X. DERCUM, A.M., M.D., Ph.D. Second Edition. Pp. ix+395. P. Blakiston's Son & Co., Philadelphia. Pr. $3.50 net.

THE first edition of this volume appeared as Volume VIII. of the "System of Physiologic Therapeutics," edited by Dr S. Solis-Cohen. The present edition has been largely rewritten and revised. As before, the author has adopted a purely clinical interpretation of the neuroses. Attention is particularly called to the interpretation of simple neurasthenia as a fatigue neurosis, and to the important distinction existing between the latter and psychasthenia; also to the lines of differentiation that must be drawn between both of these affections and hysteria and hypochondria. Emphasis has again been laid upon simple physiological methods of treatment, such as rest, feeding, and psychotherapy.

The book is divided into three parts; the first deals with rest, and includes chapters upon neurasthenia or the fatigue neurosis, hysteria, hypochondria, and the application of rest in chorea and other functional nervous diseases. Part II. treats of the therapeutics of mental diseases, and Part III. of suggestion.

The emphasis of the purely physiological factors in functional nervous conditions is too often overlooked, and the author does good service in drawing attention to them so clearly. But the equally important work of Déjérine upon the influence of emotional disturbances in creating such conditions is overlooked here, and the author is hostile to the views of Freud with regard to the results of mal-adaptation to environment and mental conflicts. In fact, he considers the cures from psychoanalysis have the same unreality as those achieved under hypnotism.

The results obtained from the clinical study of the neuroses of war will modify largely many of the views expressed here, but the book contains much interesting historical matter, and in the last chapter a brief account is given of the author's views of many kinds of faith cures and similar methods of treatment.

Review of Neurology and Psychiatry

Original Articles

WAR PSYCHOSES—DEMENTIA PRÆCOX IN WAR TIME.

By D. K. HENDERSON, M.D.,
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A QUESTION not infrequently asked is as to whether modern warfare has been instrumental in producing any new type of mental disturbance. It seems fair to suppose that such might be possible owing to the fact that the stress and strain of modern warfare has developed into something which most of us little dreamed of, far less thought of taking an active part in. It can truly be said that many men have undergone and are still enduring an ordeal which they had in nowise ever expected, and accordingly it was surmised that the horrible situation might produce some effect peculiar to it. I think, however, it may be stated, without fear of contradiction, that no special type of war psychosis has developed, but that the psychoses occurring during the war are essentially similar to those occurring in times of peace. The stress and strain of the military situation has simply acted as the precipitating factor, and has brought forth those latent trends in the individual's constitution predisposing him to a particular type of mental disturbance. This is well seen in that type of individual whose mental make-up has been of the dementia præcox type, and I would wish to consider how the war has affected this particular type of mental disturbance.

In an article published in 1912, Kay (1) stated that in 1908 the total number of recruits enlisted in the British Army was

61,278. Of these the following were rejected for weakness of intellect: (1) On inspection, 54, equal to 0·88 per 1,000; (2) three months after enlistment, 71, equal to 1·16 per 1,000. The forms of insanity most prevalent were melancholia, mania, and delusional types. King (2), in a review of mental diseases occurring in the United States Army, has stated that more than half of the mental diseases met with in the army, requiring asylum treatment, are of the dementia præcox variety. Smith (3) reported that from 1905-10, 47 per cent. of all military patients received in the Government Hospital for the Insane, Washington, suffered from dementia præcox. The probability is that in our army we had a fair proportion of cases of dementia præcox, and many other potential cases. When we realise that in peace times the proportion of cases of dementia præcox admitted to asylums is approximately 15 to 25 per cent., and when we realise that in war the percentage of mental cases becomes greatly increased, the above statistics should act as a serious warning and example. So far as my personal experience goes, I am in no position to give statistics or accurate data, but from over one year's experience with military mental cases, particularly at the Lord Derby War Hospital, having accommodation for 1,000 cases, and at D Block, Royal Victoria Hospital, Netley, which acts as the receiving hospital for mental diseases occurring in the over-seas troops, it can definitely be said that the vast majority of cases are either dementia præcox or mental defectives. One has only to think of the huge amount of accommodation which has had to be put aside for treating mental cases to appreciate the gravity of the problem, and to recognise the fact that the war, in addition to its toll of killed and maimed, has undoubtedly claimed its quota of mentally affected. This is only what one might have expected from the conditions of modern warfare. The stress and strain are not only severe, but they have been for the most part so unexpected that many have fallen victims to dementia præcox and other mental disorders, who otherwise in civil life might have been able to successfully pursue the even tenour of their way.

In the group of cases which I have taken as the basis for this paper, the histories, I regret to say, are in many ways incomplete; but incomplete as they are, they show over and over again that a great many of these patients have had an abnormal make-up, have previously to enlistment been in asylums, or have had definite

mental symptoms without asylum treatment, and have broken down within a few weeks or months after being sent abroad.

Types.—In the United States Army, in peace time, King has stated that hebephrenia constituted 64 per cent. of the cases, the catatonic cases amounted to 25 per cent., and paranoid cases to 9 per cent. If these statistics are correct, and there is no reason to doubt them, then it is astounding to realise what a change has been produced by war conditions. My experience with the British Army has gone to show that by far the predominating type has been an hallucinatory paranoid state. The 159 cases which I have fairly complete notes of, and which have been gathered without any special selection, probably do not show the strictly correct relationship, but still the distinction between the types is so great as to show very clearly where the preponderance lies. Of these cases, 111 showed an hallucinatory paranoid state, 17 were catatonic, 20 were hebephrenias, 16 showed an emotional blunting without any special trend, and 1 was not grouped. It has been possible to separate from these 111 cases showing an hallucinatory paranoid trend 14 cases in whom the paranoid state had been of long standing, and had been unaccompanied by emotional deterioration. These cases have been grouped separately as paranoid states, not dementia præcox in nature. We have left, therefore, a total of 97 hallucinatory paranoid states of the dementia præcox variety. The above statistics, however, are not at all in accord with either those of Farrar or Hotchkis. Farrar (4), in a paper on "War and Neurosis," in which he analyses nervous and mental diseases occurring in Canadian troops, found that 34 per cent. were cases of dementia præcox, but this percentage is on a basis of only 17 cases. He found that the great majority of the cases were simple deteriorating forms, not as a rule differing in any essential way from corresponding civilian types. "The larger number were probably of the intellectively defective variety." The only criticism which one would make of Farrar's statistics is that they are not comprehensive enough. Hotchkis (5), in his analysis of 942 cases admitted to Dykebar War Hospital from 24th January 1916 to 31st January 1917, classified dementia præcox as forming only 14 per cent. of his admissions; there were 11 cases of catatonia, 14 paranoid states, and 93 of a simple form. In contrast to his dementia præcox findings, manic-depressive cases formed 21 per cent., confusional cases formed 16 per cent., paranoia formed

5 per cent., &c. In regard to these statistics, the extraordinary thing is the relatively small number of dementia præcox cases, and the relatively large number of confusional states. What one would want to know is whether the cases so diagnosed corresponded to the toxic-exhaustive group, or whether they were simply cases of temporary clouding without any special toxic features? The term "confusional" is used so loosely, and is applied to so many states, that it seems not unnatural to wonder whether, perhaps, a certain number of the cases of "confusional insanity" did not more properly belong to the dementia præcox group. Then again, unless the cases of paranoia are held to be synonymous with paranoid states, the high percentage is phenomenal.

At first an attempt was made to separate the hallucinoses from the paranoid states, but the two ran so closely together that it was found to be impossible to clearly differentiate them, and so, for convenience in grouping, they have all been classed together. Again, in regard to this hallucinatory paranoid group, it may be said that those cases which almost certainly were induced directly by alcohol have been kept apart, and have been placed in a separate classification with the alcoholic psychoses. It may be, however, that some of the cases belonging to the alcoholic psychoses have been grouped with the dementia præcox, and maybe some of the dementia præcox should have been grouped with the alcoholic psychoses; but that is a small matter, and depends entirely on whether one wishes to emphasise the constitutional or etiological factors.

Those cases which have been called the hallucinatory paranoid states are the ones which have given rise to a great deal of discussion. Some there are who hold that the hallucinatory paranoid states are a direct result of the war situation, that they are a special type of mental disturbance due to the war, and that it is erroneous and distorts the conception of things to look upon them as being of the nature of paranoid states occurring in dementia præcox. This view is held partly on the ground that a great many of these cases run a very transitory course, and often, by the time the patient has reached England, he is in a convalescent condition, and has a fair realisation of his condition. The varied nature and constantly changing delusional ideas, without any special systematisation, differentiates those cases sharply enough from the paranoid states, not dementia præcox in nature, which we have

been accustomed to see in civil life. It would be easy enough to argue either way, as to whether or not these were cases of dementia præcox, but it does not profit or get one anywhere to so argue, and it is much more satisfactory to think of the matter in terms of a mental reaction. Whether or not these cases recover, whether or not they gain insight, it is patent that the reaction which they have made to the situation in which they have been placed has been an inadequate one, and of a dementia præcox type. MacCurdy (6) has pointed out, in a paper on the "War Neuroses," that the anxiety and conversion hysteroid states in war time come about at a more superficial level, and react more easily to treatment than similar states occurring in civil life. The same analogy holds true for the war psychoses, and it may be said that many of the cases of dementia præcox occurring during war, although essentially the same as those occurring during civil life, occur at a more superficial level, and in consequence show a quicker readjustment than is the case with civil cases. They are still, however, cases showing a dementia præcox mechanism. I have thought it advisable to group the great majority of the hallucinatory paranoid states as a sub-group of the dementia præcox type of reaction.

Etiology.

Meyer (7) and Hoch (8) in their work concerning the dementia præcox constitution have repeatedly pointed out that the inherent defect with such patients is their inability to satisfactorily meet their difficulties. Hoch particularly has shown how the candidate for dementia præcox is a person who tends to get out of touch with reality, and to suffer from what he has aptly termed the "shut-in" personality. Such persons are dreamy, asocial, lacking in aggressiveness, shy, ultra-conscientious, and far too sensitive to criticism; others again are precocious at school, are irritable, suspicious, "cranky," over-religious, and so on. Farrar has pointed out how the number of cases of dementia præcox, showing tangible psychotic elements in the fore-history, increases in proportion as adequate life data of those affected become available. "It may be a legitimate question whether in any præcox case the early history could be set down as 'negative,' if complete data were at hand." Farrar has differentiated certain fairly well-defined anlage types, which may be briefly mentioned.

1. *Backward Types.*—In this group are included those lacking in ambition, the absent-minded and forgetful, the truants, those lacking in application. Later in life the work impulse is absent, or vacillating and inadequate.

2. *Precocious Types.*—These are the bookish, serious, prudish, model children.

3. *Neurotic Types.*—These are delicate children, subject to headaches and minor ailments. They have tantrums, are selfish, deceitful, and are the "difficult" cases in their respective families.

4. *Asocial Types.*—These are seclusive, day-dreaming, castle-building individuals, who tend never to thoroughly emancipate themselves.

5. *Juvenile Types.*—This is the type that never "grows up."

Keeping these facts in mind, it is not surprising so many such cases should quickly break down after enlistment in the army. In civil life a great many of these patients have led quiet, secluded lives, and no special strain has ever been put upon them; when such individuals are suddenly pitchforked into the army, where it is necessary for them to associate and work-in with their fellow-men, a strain is put upon them which they are in no wise able to meet satisfactorily. It is this want of harmony between the individual and his surroundings which, I believe, is largely, in time of war, the predisposing basis for the development of this particular type of mental disturbance. Again the fact may be emphasised that the more or less sudden withdrawal from home, and forced residence in distant countries, acts very adversely on those possessing a sensitive make-up. In addition, however, to the make-up and the more or less patent factors already mentioned, other factors of a complex nature are usually present, and it is these which must be reckoned with as the probable specific causes. These complex factors are, of course, for the most part the same as those seen in civil life, but the two which specially stand out are: (1) the conflicts over auto-erotic habits; (2) the doubt, worry, or anxiety in regard to the faithfulness of wife or fiancée. In many cases, as a perusal of the daily papers goes to show, this doubt is founded on fact, and not infrequently is resolved by the murder of wife or sweetheart; on the other hand the doubt is often the projection of the soldier's own unfaithfulness on to his wife. It is doubts and suspicions of this

kind which rapidly merge into hallucinations and delusions, and not infrequently end in homicidal or suicidal attacks.

The precipitating factors which one has frequently had given as the cause of the breakdown are such things as (1) the stress and strain of the campaign; (2) the sound of the artillery fire; and (3) seeing comrades killed or wounded. For instance one patient said: "It was the sight of seeing the men wounded, and the sound of the guns—it was more that than anything else." Another said that he had been upset by the number of dead he saw lying about; another described the fighting as "having played on my nerves a bit"; and another dated his upset from the time his brother—who was close beside him—was killed by a shell explosion.

Other patients have blamed the climate of Egypt, India, Mesopotamia, &c., for their breakdown. This last factor seems to have been specially important in those who have been chronic alcoholics, or have had head injuries.

Symptomatology.—In the first place it may be well to point out that the great majority of the cases did not show a symptomatology which was clean cut, did not conform to one special type, but, on the other hand, were composite pictures. A large number have been nervous and shaky to start with, many have passed through a more or less stuporous state with blocking of thought, and then finally have shown either a full-blown catatonia, hebephrenia, or paranoid state. In all the varieties the symptomatology in general is similar to that which has been so fully described over and over again in civil life. Naturally enough, however, the content of the psychoses during the war has taken on, to a marked degree, an environmental colouring.

One patient, for instance, said that he was superior to Kitchener and Jellicoe; that he had won the war; that he had had his revenge on the Germans for killing his pal; that he had won the V.C., but had lost it on the hospital train; that he was entitled to a decoration from every other country; that he would be made a Field-Marshal; and all this because—"you see I was a teetotaler." Another patient said he wished to see the corps commander about an issue of hymn books. A week later he dressed up with a view to getting the D.S.O.; saddled and took out a horse, and later was found without any clothes on, standing in a watering trough in the middle of the village saying that he had won his race.

Another, a catatonic with violent impulsive episodes of behaviour, kept repeating, "I am the King of Spain, I demand my release, I want to see my troops, I want to see my palace." A No. 1 air-mechanic, who was in a silly, giggling, grimacing state, said that he wanted to go to "Blighty," because otherwise he would be shot, that he wanted to get his V.C. from the King and become a recruiting sergeant. In contrast to those showing the above grandiose trends, a great many patients have been seen who had developed the idea that they were spies and cowards. For instance, one patient stated that he was a coward and a spy, that even the French people when he passed them said "napoo," and in consequence of these ideas he developed the delusion that he was going to be shot. A sergeant, who was constantly hearing himself being accused of cowardice, became so worried and distressed over the situation that he attempted suicide by cutting his throat. A gunner, suffering from an auditory hallucinosis, attacked one of his comrades with a shovel because he was sure he had heard him call him (patient) an ugly name. Another sergeant developed the idea that men belonging to the Argylls, Seaforths, and Gordons were after him to kill him, and to avoid them he hid beneath his own bed, left his billet, and generally behaved in an extraordinary way. The above cases are good examples of those types of individuals who, on the basis of their hallucinatory or delusional ideas, so frequently show suicidal and homicidal impulses. Other common symptoms met with consist of the patient becoming slovenly and untidy in his habits, of losing his equipment, and of refusing to obey orders. Such offences are frequently repeated, and often before the patient's mental condition has been investigated, he has been subjected to punishment. One patient, admitted in a state of stupor, said that he had been sent down the line for having refused to comply with an order given by a superior officer; he had lost his rifle and box respirator, had frequently been absent from parade, and never was in possession of his iron ration. A private in the R.A.M.C., who said he had first seen "the light" six years ago, had frequently been under arrest for refusing to obey orders, but eventually he was found to be mentally disordered, and was sent to hospital. Another patient, who had fallen asleep when on guard in the trenches and had been punished by a sentence of twelve years' hard labour, was constantly hearing his offence cast up at him, and

on this basis developed a whole series of persecutory ideas. Another, who is described as having shown great bravery while on the Somme, had for three months previous to his admission to hospital constantly been abusing his N.C.O.'s., had been losing his equipment, and latterly was found to be irresponsible. Other symptoms less frequently met with are exemplified by the following:—A private, both of whose parents and a brother were in asylums, had received twenty-one days' F.P. for breaking another soldier's jaw; he was reduced to the ranks, felt that he had been unfairly treated, and told the D.D.M.S. that he would kill his colonel at the first opportunity, even though he had to hang for it. Another patient on being wounded stated that his wound had been caused by his comrades, as they suspected him of being a traitor to his King and country. Another patient stated that his comrades had spread a report about him, saying that he was a German; they seemed to avoid him, did not speak to him, said they would do him in. This man who, in civil life, had always worked by himself on a farm, said that being among a lot of men had made him nervous, and as he expressed it: "I was frightened for my own shadow over there." A sapper who latterly developed a typical catatonic state, and was under my care for months, suddenly, while in the trenches, had attempted to go over the top by himself as he said he wished to fight the Germans alone. Another patient felt that the Crown Princess of Germany was controlling him, and constantly seemed to pull his eyes and head around. In addition to the foregoing, I would also draw attention to the fact that in dementia præcox fugue-like states are frequently met with, and many a time desertion comes about owing to these patients hearing voices telling them to leave the trenches, &c. Examples of this type of case have been described in detail in a paper on "Amnesia as a Defence Mechanism for Desertion" (9).

In addition to the above general facts, it would probably be well to give a few histories in detail so as to show the scope of the material:—1. A private, 31 years old, had served in the army for two years. Two maternal cousins had been insane. The patient had had a normal childhood, had learned well at school, and, previous to joining the army, had worked for eleven years as a tramway conductor. He spontaneously told how, previous to joining the army, he had been becoming suspicious,

felt that people coming into the cars had been tampering with his food, and asserted that he would never return to the tramway service. On 3rd October 1916 he was admitted to a stationary hospital with a self-inflicted wound of the neck. He was described as suspicious and miserable, wished he was dead, and said people seemed to avoid him, sneered at him, and laughed at him in a sarcastic way. They made out that he was a spy, and shadowed him "because Lonsdale, who is at present in Germany, was a tramway man." The tobacco was doped, stuff was put in the washing water to destroy his eyes, the semen of a dog had been put in his bread and tea, he had been tested by having dirty socks put at the head of his bed, and smells were present all around him.

On 16th October 1916, on admission to the Lord Derby War Hospital, he was sullen and suspicious, he stated that he suffered a great deal from his head, that he did not seem to have the thinking ability he should have, that all sorts of peculiar ideas formed in his mind, and that when he was left alone he was much better. This man had served in France for eighteen months with a line battalion; for five or six months previous to his reporting sick he had been feeling queer in his head, had suffered from headaches, had brooded, and had become forgetful. He maintained the delusional ideas reported above, and stated that he had got reasons for believing that he was a marked man. He said, "I seem to be out of place; there were two or three men out of the Warwicks, and several other men of regiments belonging to the same division, who seemed to be against me." It was on account of his feelings of persecution that he had attempted to cut his throat.

A few days after his admission to hospital he stated that he was feeling better, that every one treated him well, that his comrades in hospital did not seem to laugh or sneer at him, and that nothing was being put in his food.

A review of this man's personal history failed to elicit any history of psychopathic traits except for the fact that in civil life he had been unduly suspicious. He had been a teetotaler all his days, and in civil life had been steadily employed.

Physically, he showed no disease of his organs, and no neurological symptoms.

2. A private, 20 years old, who had been in the army for

fifteen weeks, *broke down nineteen days after his arrival in Egypt.* On 4th August 1916 he was admitted to a general hospital, where the following note was made:—"Since the age of 18 years he had been eccentric. People had thought him mad, and had spoken about him in the streets. He was tearful and emotional, was foolish, giggling, and childish, and quite unable to apply himself." In October 1916, at Netley, he said that the country, the heat, and his comrades had upset him. His palate was high and narrow.

On 17th October 1916 he was admitted to the Lord Derby War Hospital. He was quiet and orderly, but laughed in a foolish, superficial way. He stated that before ever joining the army people had said that he had the "eyes of a lunatic." On this account he had never been able to mix with other people, he had always been sensitive about his appearance; it had always been difficult for him to control his emotions, but he denied ever having had any delusions of persecution or hallucinations. He was correctly oriented for time and place, his memory was good, and he retained a fair grasp of his school knowledge. He had been a shy, sensitive, seclusive boy who had never made friends with other boys, and had been especially bashful with girls. His people, he said, had never understood him.

Physically, he was in good condition.

3. A private, 23 years old, with eleven months' service, *one week after arriving in France,* on 31st October 1916, was admitted to a general hospital. He was garrulous, irrational in thought and speech, and, in his imagination, was a direct descendant of "Hereward the Wake." A Miss Edith Brown had an influence over him, and was to decide his future as in the cases of Napoleon and Nelson. He suffered from auditory hallucinations. In November 1916, in Netley, he said that he had a presentiment that he had conquered death four times. On 10th November 1916 he was admitted to the Lord Derby War Hospital. He was restless, seemed ill at ease, and took little interest in what went on around him. He answered questions promptly, and to the point; he spoke quite readily about his strange ideas, maintained that he had conquered death, but could not explain his meaning. He admitted that he was constantly hearing the voice of Miss Edith Brown, who said to him, "You have made one of the most remarkable discoveries of any man in the world. You will be made Chancellor of the Exchequer in four years' time." He

thought that this voice was in no way imaginary, and said that he believed that Miss Edith Brown's mental powers and his own were connected. He admitted having strange ideas in regard to religion and politics, both of which he said were based on a creed of reason; the Presbyterian religion was to be "the body," and the creed was to be "no self-abuse of anything appertaining to nature." He had the presentiment that England was to be the chosen race, and that in four hundred years' time the whole world would be called England. He was not sure whether his genealogy from Hereward could be traced by Somerset House, but he believed that such was the case. He likened his association with Miss Edith Brown to that of Nelson with Lady Hamilton, and felt, too, that Shakespeare had been ruled over in the same way. He was correctly oriented for time and place, his memory was good, he had an excellent grasp on school knowledge and on general information. He had no realisation of the serious nature of his condition.

This patient's personal history showed that he had been a healthy boy, without any special psychopathic traits. He had been very precocious at school, and had been in Standard X7; in civil life he had worked as a cashier and clerk.

Physically, he was in good general condition.

4. A private, 34 years old, who had been in the army for one and a half years, on 3rd August 1916 was admitted to a stationary hospital. He was described as follows:—"He had been annoyed by people making fun of him—officers, men, and French civilians. They used to come out and watch him wherever he was going, and laughed and sneered at him; he knew that they were talking about him. He heard them shouting spy, and thought that it referred to him. He said that the French people knew about him through his writing to his wife while at Grantham: that he was going to be shot as a spy. He also heard the other patients in the hospital saying spy, bastard, &c., to him. On 8th August 1916 he was admitted to Netley, where he gave a history similar to the above. On 11th August 1916 he was admitted to the Lord Derby War Hospital. He was in a nervous, excitable, suspicious state, and expressed many delusions of persecution and had aural hallucinations. He heard the other patients calling him names, *e.g.*, "H., the Welsh bastard," and on the basis of these remarks he attacked one of the other patients. On 14th

August 1916 he came into the physician's office and complained about the N.C.O.'s and orderlies persecuting him. While in the office he carried on a conversation with himself, "Yes, sir," as if the medical officer had made some remark to him. When asked for an explanation of his conduct, he said: "Are you afraid of getting killed?" "Will you fight?" &c. He stated that it was in March 1916, at Grantham, that the whole business had started; his comrades there looked at him peculiarly, seemed to avoid him, and seemed to accuse him of being lousy. He thought that it was the sergeant-major of the company who had first started it. His comrades said that they would bathe him, that they would pour boiling fat over him, and gradually as time went on things got worse and worse. At that time he had been home in hospital on account of frost-bitten feet, but he did not complain about his mental condition, and returned to France in June 1916. Shortly after getting there, on account of the persecution to which he was subjected, he attempted to transfer from the Machine Gun section to the Gordons. He said he had never been called a coward before: "they told me I was for a court-martial, and that I would be shot as a spy." He was correctly oriented for time and place, his memory was good, he had an excellent grasp on general information, but he had no insight into his condition. He had done splendidly at school, had been a commercial traveller in civil life, but described himself as thin-skinned and sensitive, and added, "all the family are, sir." He had been irritable and quick-tempered, had been jealous of his wife, and even before he joined the army had accused her of carrying on with another man. After making some inquiries he had found that his suspicions were unfounded.

5. A private in the R.A.M.C., who had been in the army for two years and nine months, on 20th November 1917 was admitted to a stationary hospital. "He was restless, agitated, and said that God had told him to go to Rouen to carry on His will." On 29th November 1917 he was admitted to "D" Block, Netley. He was dull and listless, but answered questions relevantly and to the point. When asked his complaint, he replied, "Nothing, but some one is trying to ruin my character at home." He had been in France since May 1915, and on 26th October 1917 had been buried by a shell explosion at Passchendaele. He was able to extricate himself, was badly shaken and nervous, but did not

need to go to hospital. On 19th November he had a vision from God telling him to go to Rouen to carry on His will. In response to this vision the patient deserted, walked to Boulogne, but at the station was arrested, and taken to the detention camp. God had said that he would endow him with powers, and give him words to speak. Following his arrest and confinement he developed the idea that the clergy had conspired to ruin him, owing to the fact that they did not like the Church Army, of which body the patient had been an officer in civil life. He heard people accusing him of leading a bad life, of consorting with loose women, and so on. He described his head as feeling quite clear. He was well oriented for time and place, and had a good memory. He had no insight into his condition.

In regard to his family history, he stated that one of his sisters was very nervous and was afraid to go out at night time. He himself had been a nervous, seclusive boy who, on leaving, had reached the highest class at school. He had always been religiously inclined, and shortly after leaving school had joined the Church Army.

6. A private, 22 years old, with ten months' service, three months after arriving in France was admitted to the Field Ambulance. "He refused to answer questions until asked several times. He was reported to have appeared on parade without his trousers on, and also of having urinated in his mess tin." On 27th June 1916 he was admitted to Netley, where he was dull, slow, stupid, wet his bed, and laughed to himself. On 4th July 1916 he was admitted to the Lord Derby War Hospital. He was dull, slow in answering, and uninterested. He complained of his teeth, of a slight rupture of his left side, and of bad headaches. He stated that when his headaches were at their worst he did not seem to know what he was doing. For two or three months previous to his enlistment he had been suspicious, had ideas of reference, and thought that people were watching and following him. During his training, and after going to France, these ideas did not bother him, but while in France the shelling upset him, made him nervous and irresponsible. No hallucinations or delusions could be demonstrated. He was correctly oriented for time and place, his memory was good. He had been in the sixth standard at school, was able to do simple calculations correctly, and had a fair grasp on general knowledge. He had never been a

strong boy, but always had been nervous, quiet, and did not make friends easily. He had been especially shy with girls. In civil life, however, he had earned £3 per week.

7. A private, 23 years old, with one year and six months' service, on 23rd June 1916, at Abbassia, had been recommended for discharge as permanently unfit. He had been rambling in speech, and had the idea that his thoughts were transferred to others, complained of being kept awake by telegraphy, and had been unable to do his work as a hospital orderly because he was obsessed with the idea that his fiancée was a nurse in the hospital. On 24th July 1916 he was admitted to the Lord Derby War Hospital. He was quiet, dreamy, and seclusive. He maintained the idea that the sister in charge of the ward in which he was working was really his fiancée, but at the same time he admitted that all the time he was there he was receiving letters from England from the girl to whom he was engaged, and he could not understand the matter. He stated that ever since the age of 15 years telegraphy and wireless had been working on him, and that certain strange phenomena had been happening to his body which he could not explain. He was quite certain that his thoughts were transferred to others, that the material in magazines was a reproduction of his thoughts, and that whatever he heard said was a reproduction of his thoughts. In his dreams, places would be depicted that he had never seen, but eventually he did see them, and in consequence he believed that he dreamed true. He was correctly oriented for time and place, his memory was good, he had done splendidly at school, and had been successful in business as an ironmonger. He had been a weakly, nervous, timid, bashful child, who had never made many friends. He had been reserved and sensitive, and never had been at ease in company. In his early days he had been addicted to the habit of self-abuse, and he felt that it had probably ruined his life.

8. A sapper, 22 years old, who had been in the army for two years, on 20th September 1916, is reported as having attempted to go over the parapet, as he stated that he wished to fight the Germans by himself. He was in a state of great excitement, and was transferred to a dressing station. At the stationary hospital, he was described as restless and excited, he made peculiar movements, placed his limbs in peculiar positions, put his hand to his ear as though he were listening, stood on his tiptoes, &c. He

paid no attention to questions asked, but kept on talking in a whisper to some imaginary person, and told some imaginary people to go away. He asked for a drug to put him to rest, as he had worshipped a woman whom he could not get. On 24th September 1916, at Netley, he was dull and stuporous, fell on his knees and prayed, and wrote incoherent letters. He appeared to be lost in regard to time and his surroundings, but he refused to answer questions. On 2nd October 1916 he was admitted to the Lord Derby War Hospital. He was in a dull, uninterested condition, but when questioned he brightened up considerably, and said that he had been feeling properly run down and in low spirits. When asked why he was depressed he replied, "Because I have loved a woman that much, and I feel that I am not worthy of her." He had become engaged to this woman shortly before going to France. He denied that he had done anything unworthy of him, and if it was possible he would ultimately marry her, but while in France he seemed to hear a voice telling him that she was married to some one else: since that time, doubt had ever been present in his mind, and he had worried. Gradually the voices became more distinct; he was not only told he would never get married, but, in addition, that he was a bastard. Even since coming to hospital he has heard the same remarks passed continually, and at night they are especially insistent. This soldier had seen a great deal of fighting, had been on the Somme, and stated that it was the sight of so many dead bodies lying around that at first had unnerved him. He remembered in a vague way having attempted to leave the trenches to fight the Germans, but following that he had practically no recollection of his evacuation from France, or his journey to England. In addition to his experiences in France, he had gone through the campaign in the Dardanelles. He was correctly oriented for time and place, and was able to give a good account of his life. He had been clever at school, had been a steady workman, but had always been sensitive and kept more or less to himself. He accepted an explanation of his illness, and it was thought that he would make a good recovery.

Physically, he was in excellent condition.

During the course of a few days he relapsed into a dull, stuporous state, took no interest in anything, wet and soiled himself, and had impulsive suicidal and homicidal outbursts.

During the next six months he continued in the same catatonic condition. He had to be clothed in strong garments, and owing to his violent tendencies had to be carefully watched. During all this time it was impossible ever to get more than a word or two from him.

Diagnosis.—As has been stated in the beginning of this paper, no attempt has been made to diagnose these cases in any hard and fast way. It is readily admitted that another person analysing the same material might have come to somewhat divergent results from mine, and might have been inclined to group the cases somewhat differently. In the main, however, the results are approximately correct.

The war has not produced any new symptoms or signs which can be used as helpful aids in the diagnosis of dementia præcox. We have to content ourselves with the same diagnostic rules and criteria which we have been accustomed to use in regard to civil cases. Indeed, in our cases occurring in the army, we have very much less complete case records than in civil life, and in the great majority of our cases it has been impossible to get any satisfactory history from the families in regard to the patient's personality. We have had to depend for our information on the notes received with the patient from France, Egypt, &c., and on the patient's uncorroborated statement. The diagnosis of dementia praecox, at all times, is a difficult and serious matter, and under the above circumstances we have had to be very careful before coming to even a tentative final conclusion. Instead, therefore, of dogmatically asserting that such or such a patient is suffering from dementia præcox, all that we have attempted to do has been to diagnose the case in relation to the reaction type. Meyer has admirably expressed the matter by saying that it is going about things in the wrong way "to sort out the patients, not the facts," and to label men and women as "dementia præcox," or "manic-depressive insanity," &c. The whole point is "to get the facts concerning the total reaction, or reaction-type, or reaction-complex, whether it is organic, or toxic-delirious, or affective, or paranoic, or a benign, or a malignant substitutive process, or a constitutional defect or perversion, or a mixture."

According to whether the case does or does not coincide with a well-defined practical type, it is "*classed as identical with, or akin to, a standard unit*, such as we keep for our statistics, and for our

elementary teaching." Such a point of view is undoubtedly the broadest and fairest one, and I would heartily subscribe to it. The day of one name "diseases" is past, as in every case many facts and factors have to be considered.

I do not consider there is any special point in discussing the differential diagnosis, as the same difficulties are met with as in civil cases, but in passing, I may say that our greatest difficulty has been to clearly differentiate between what we may call a depressive hallucinosis reaction type and a dementia præcox. The guiding principle in differentiating these two reaction types centres round the question as to whether or not the mood is in harmony with the thought content; if it is in harmony, then the former diagnosis is the most likely; if it is not in harmony, then the condition has usually been grouped as, *most probably*, dementia præcox in nature. The other conditions which are most likely to be confused with dementia præcox are atypical manic-depressive states, and certain cases of mental deficiency with mental symptoms of a dementia præcox nature.

Prognosis and Treatment.—In regard to the prognosis, it is impossible for me to give accurate figures, owing to the fact that, for the most part, I was unable to follow up my cases, but it may be said, without fear of contradiction, that the results which we see under a military regime are considerably better than those obtained in civil life. A great many cases make a complete re-adjustment, a large number more make a partial readjustment, and it is probably a minority who remain chronic. Over and over again we see cases which, under civil conditions, we regard as ominous, under military conditions very rapidly clearing up. This is true in regard to any of the varieties of dementia præcox, and one of the explanations would seem to be that these conditions are occurring at a simpler level, and have been produced by a very unusual strain. The type of man who in civil life would develop dementia præcox, will also develop dementia præcox during his military life; but in addition there are others who, except for their army experience, would never have developed dementia præcox, and it seems to me that it is especially these cases which have a good prognosis. If one may so express it, these cases are less abnormal than the others, and my experience goes to show that in them one often fails to get a history of the dementia præcox make-up, or else only a very partial one. On the other hand, it

is true that there are many people going about and exercising their calling in civil life who possess the type of make-up characteristic of dementia præcox, and yet many of these people never do develop an out and out psychosis. These are people who, in addition to their neurotic constitutions, have sufficient good stuff in them to enable them to balance and keep in subjection their neurotic traits; in other words, they compensate for their difficulties by adopting habits of rest, work, and play which safeguard them. There are others, however, not so well balanced, who gradually, usually on account of complex factors, show emotional blunting, or dreaminess, or asocial tendencies, or irritableness, or think that people are talking about them and watching them. For a time they are able to keep their ideas from flagrantly interfering with their conduct, and often the situation may be warded off by a rest, by a holiday, by a change of occupation or environment, or by other means. In such cases the abnormalities displayed are glossed over and made light of by the friends, but latterly the old symptoms return with heightened intensity, and after months or years the patient will be sent for treatment to a hospital for mental diseases. The consequence is that often before such a case comes for treatment, under the best conditions, much valuable time has been wasted, the disease has often become full blown, and more or less chronic. A great contrast to the above is seen under military conditions. In the army such abnormalities of conduct as have been mentioned are quickly thrown into relief, as the individual soon proves himself to be different from his fellows. The soldier shows his asocial tendencies by becoming insubordinate to his officers and N.C.O.'s, by the repetition of the same offences over and over again, and by his being impervious to punishment. In consequence, steps are very soon taken to have his condition investigated by the medical officer, who should at once recognise that the soldier's acts are a serious menace to his associates. Under such circumstances the patient is immediately sent to some hospital for further observation, and, if his condition warrants it, he is evacuated to England to a special hospital for nervous and mental diseases. In this way many more cases are received in their incipiency than is the rule in civil life, and furthermore, such cases can be detained so long as the military authorities see fit, without any so-called slur or stigma attaching to the patient. To those of us who have had experience with

mental cases both in civil life and in military work, it has been extraordinary to find how much more readily the military patients readjust themselves and co-operate in treatment. *It would be impossible to get a better or more concrete argument for the early treatment of mental cases than has been furnished us by our army experience.* At this point it would be well for me to give a few instances of the readjustments which have taken place.

1. A private, 39 years old, attached to the Army Veterinary Corps, on 25th May 1916 was reported by his medical officer as believing that imaginary persons were attacking him with a view to doing him personal injury. His comrades stated that at night they had heard him talking to himself incoherently, and that when affected by his delusions he would strike out at imaginary persons, and frightened his comrades. At the stationary hospital he was diagnosed as suffering from "delusional insanity." While there he stated that a certain soldier had the power to act on him by means of an apparatus which sent a shock from his heart to his head. He was erratic in his speech, restless at nights, and incoherent in his thought. On 8th June 1916, on admission to Netley, he stated that people had been talking about him, had been working an instrument on him, and that this had been going on for several months. He seemed to hear the voice inwardly, and wherever he went it travelled with him. He was described as being delusional and as having marked hallucinations. On 19th June 1916 he was admitted to the Lord Derby War Hospital. He answered questions promptly and relevantly, and co-operated readily in an examination. He denied any feeling of depression, said that his head felt clear, and that he was steadily improving. He was able to give a good account of himself, and stated that he had gone to France on 16th January 1915. Several months after his arrival there the men in his hut had begun to annoy and make fun of him, because he refused to join them in going to estaminets. Later he became nervous and worried, thought that his comrades were accusing him of stealing, and in consequence he felt frightened lest he might be arrested and unjustly punished. He became more and more upset, and now began to hear voices which seemed to come from outside his hut, and often from a distance of a mile or two away. Latterly this voice seemed to originate inside himself, threatened to shoot him, and threatened him in other ways. On several

occasions he seemed to see this imaginary person with an instrument attached to his mouth and ear, so as to allow him to hear in a hyper-acute way. He also began to experience shocks from an instrument, and these shocks seemed to travel from his heart to his head. The whole was so realistic to him that he told his comrades that he was going to report it to the major. On his admission to the Lord Derby War Hospital those ideas and hallucinations had practically disappeared. He was correctly oriented for time and place, his memory was good, he had a good grasp on school knowledge, and on things in general. There was no history of alcoholism or any venereal disease. In regard to his family history, he stated that one brother was in Morningside Asylum. The patient himself had been a strong, healthy man, who never had shown any psychopathic traits, and had never had any nervous breakdown in civil life. He was married and had seven healthy children.

Physically, he was a strong, muscular, robust man who had no disease of his organs and no neurological symptoms.

During his hospital residence he adapted himself to his situation, acquired insight into his past condition, and made an excellent recovery. He stated that he realised that it had been necessary for him to have hospital treatment, and he was grateful for what had been done for him.

2. A drummer, 1st Irish Guards, 19 years old, on 22nd July 1916 was reported by his comrades as making vague, strange remarks—for instance, when he was told to wash and shave he replied, "British sailors are the best in the world." On 31st July 1916, at the general hospital, he was described as "dull, restless, apathetic; he is solitary, seldom speaks, is suspicious." He made such statements as "I can hold my own against one, not against twelve." "I prefer my case to go before a higher authority." "If I write names in my pay book, there is no reason why they should make a mountain out of a mole hill." "My lips are sealed; I would rather not discuss the matter." He was diagnosed there as a case of "Delusional Insanity." On 11th August 1916 he was admitted to the Lord Derby War Hospital. He was quiet and orderly, but seemed dull and sullen, he answered all questions promptly enough, and co-operated in the examination. He described himself as feeling contented, said that his head felt clear, and that he thought he was getting better. While in

France people had seemed to behave oddly towards him, but he added, "I do not know whether it was my fault or theirs." This boy had enlisted when 14 years old, and went to France at the outbreak of war in August 1914. Owing to a shortage of men he had had to take his place in the trenches, had seen a great deal of fighting, and in December 1914 had been wounded in the hand. Everything had seemed to go well with him until September 1915, shortly after the battle of Loos. At that time he was shaken up by his experiences, and his nervousness was exaggerated by the fact that another boy was allowed to practise on his drum, and he felt that he had been discriminated against. Following this his comrades seemed to avoid him, he did not seem to be able to make friends with them, and on one occasion, because he had been slow, a sergeant knocked him down. When asked for an explanation of his statement that he could hold his own against one but not against twelve, he stated that he still adhered to it, and that the reason was that the eleven other drummers were against him. The remark that he made about his case being taken before a higher authority referred to the fact that the medical officer had been cross-questioning him; the other remark, in which he said, "My lips are sealed, I would rather not discuss," concerned an incident which had happened in 1912, on account of which he had been blamed for slashing certain of the drums, but nothing definite was ever found out about it.

Discussing his mental condition, he admitted that he had been much too hasty and sensitive, and that probably the whole thing had originated much more with himself than with his comrades. He was correctly oriented for time and place, his memory was excellent, and he had a good grasp on school knowledge.

Physically, he was a strong, well-developed, muscular boy, with no evidence of any gross disease.

This patient's mother stated that there was no history of any nervous or mental disease in the family. The patient had been a strong, healthy boy who had done well at school, had enjoyed games, and had been well liked. He had always been sensitive and quick-tempered, always took offence easily, and was stubborn.

He made a complete readjustment.

3. A private in the A.S.C., 34 years old, on 21st June 1916 was admitted to the Field Ambulance. He was excited, said something had been done to him by his comrades, that he had

been chloroformed, that his comrades did not speak to him and shunned him, and that they suspected him of stealing. On 25th June he stated that two orderlies who had been detailed to look after him were spies, and that they were signalling to German balloons and aeroplanes by means of ribbons and glass mirrors. On 30th June 1916, at Netley, he stated that he thought his condition had been caused by the heavy shelling; he also expressed the idea that he had been drugged, and that spies were after him. On 4th July 1916 he was admitted to the Lord Derby War Hospital. He was quiet, orderly, polite, and gave no trouble. He answered questions promptly and correctly, said that he was keeping better, that he was happy enough, and that his head felt clear. He had enlisted in February 1915, and went to France in January 1916. While in France he had been driving a transport waggon, and had been fairly constantly under fire. One night in June, after waking from a deep sleep, he felt dazed, and there was a peculiar smell on his hands which he thought was due to chloroform. He did not seem to be able to collect his thoughts, but reported the matter to the doctor, said that some one was trying to chloroform him, but could not state definitely who it was. He admitted also having ideas about spies, about being drugged, and so on. He had also been worrying over the fact that he had not been hearing regularly from his wife. He was correctly oriented for time and place. He was able to give an excellent account of his life; he had been strong and healthy, and had developed normally. He never was timid or bashful, had always enjoyed games and company. He did well at school, and for the last eight or nine years previous to the war had been a salesman in the glass business. He had been married for five or six years, and had two healthy children. He had always been very moderate in regard to alcohol, and denied any history of any venereal disease. He was able to do simple calculations correctly, had a fair grasp on general knowledge, and gradually acquired insight into his past condition.

Physically, there was no evidence of any gross disease.

During his hospital residence he reacted well to encouragement and reassurance, and appreciated the fact that his delusional ideas had been unfounded.

4. An able-bodied seaman belonging to the Royal Naval Division, 22 years old, in June 1916 was noticed by his fellow-

comrades to be peculiar in his speech and manner. He said, "Lord Chelmsford will put things right for me." He was frequently noticed to put his right hand on his temple, kick out his left leg, and say, "Oh, yes, that's it; I remember now." During the day he would be apathetic and uninterested, but at night he seemed to suffer from bad dreams, and would roar out in his sleep. On 8th September 1916 he was admitted to the Lord Derby War Hospital. He was quiet, co-operative, and said that he felt a bit shaky, but that he was making an improvement. He had enlisted in November 1914 in the Naval Division, and in May 1915 had landed on the Peninsula. He was not wounded, but his experience there made him nervous and shaky; he was sent to hospital, and was looked upon as a case of neurasthenia. Eventually he returned to the Peninsula, but soon afterwards had a quarrel with an N.C.O., for which he was punished. He remembers having been late for parade, and probably answered back when spoken to. In May 1916 he went to France, but ever since being there he was unable to do his work, and seemed to have difficulty in controlling his legs. He felt that he was out of place, that the backwoods of Australia would suit him better, and that he was different from other people. His comrades, he said, seemed to treat his illness and behaviour as a joke, but he himself had the feeling that his body was dead. On one occasion a figure like that of a Viking stood in front of him clothed all in gold, the right arm extended and the fist clenched. When spoken to about this vision, he stated that he wanted to go towards the figure, but his body seemed rigid, and then suddenly he seemed to be flung at the figure and his teeth seemed to close over the clenched fist. He said, "I wonder whether it had anything to do with Kitchener. I seemed to come to myself after calling out Kitchener." He stated that while at Netley he had behaved in an impulsive way, jumped from one bed to another, and seemed to hear some one say that he was a little child again. In France, one of the things which had annoyed him had been the feeling that his comrades seemed to look upon him as still a child. It was only in France, however, that some power seemed to have control over him, seemed to control his speech and actions, and asked him to say, "Take me in the arms of Jesus." He was correctly oriented for time and place. He had been a healthy child, but had been frightened for the dark, had been shy, had never seemed to know

what to make of girls; but he made many friends among boys, was fond of games, and sports of every kind. From 1909 to 1912 he had been a cadet on the "Conway," had got his certificate, and prizes for theoretical and practical seamanship. In March 1914, while returning from a voyage on a sailing ship, he fell down the hold, a distance of 30 feet, injuring his spine, and for a time lost control of his bladder, bowels, and lower limbs, but by the time he enlisted he was feeling well, and seemed in pretty well his usual condition.

Physically, he had hyper-active tendon reflexes, had some tremor of tongue and hands, but no other neurological symptoms.

During his hospital residence he came to have a good realisation of what he had passed through, and made an excellent readjustment.

5. A private in the 2nd Dragoon Guards, 24 years old, on 3rd July 1916 was sent to hospital with myalgia. On 4th July he was sent to a base camp, then was admitted to a general hospital and from there transferred to the mental ward of another general hospital on the same day. There he was described as suffering from headache and insomnia due to violent and disturbing dreams of Germans attacking his mates, and of the horrors of the front. He thought he had been made to do things which were wrong. On 30th July 1916, on admission to Netley, he was dull and reticent. He was described as saying things and as hearing people accusing him. He stated that he had received a post card about Miss Cavell; he showed it to his mates, and following this they seemed to put a machine gun on him, and seemed to say that he had something to do with her death. He admitted having refused food, as he thought it was doped. On 16th August 1916 he was admitted to the Lord Derby War Hospital. He was quiet, co-operative, and was able to give an excellent account of himself. He had enlisted in June 1913, and in August 1914 went to France. He had taken part in the whole campaign, had constantly been in the trenches, and under fire. About one month previous to his going to hospital he had had more work to do than usual, had had little sleep, and food only at irregular intervals. Owing to the dampness he developed pains in the head and throughout his body, and was sent to hospital. He admitted that he became unstrung, suffered greatly from insomnia, and had horrible nightmares of the firing line. He remembered the incident regarding

the post card of Miss Cavell, but laughed frankly about the whole episode. He was correctly oriented for time and place, and his memory was good. He had been a strong, healthy boy, and had never shown any special neuropathic traits.

Physically, his general condition was run down, he was shaky and tremulous, and had hyper-active tendon reflexes.

During his hospital residence he made a good readjustment.

The above examples show in a striking way the speedy and satisfactory readjustments which take place, and the question which naturally comes to one's mind is how such a change is possible. In civil cases it is well known that in dementia præcox a readjustment from time to time takes place, but the change is hardly ever quite so sudden, so striking, and so satisfactory as in the cases we are called upon to deal with in military practice. Often such simple measures as the transfer of the patient from one physician to another, or from one hospital to another hospital, are sufficient to cause a betterment, the explanation being that the existing friction is removed. In civil cases, owing to the patient's condition being more or less set, the improvement is unhappily only a very temporary one, but in military conditions, where the cases are seen early, the effect of such measures often means a permanent improvement. Over and over again we have found that on admission, or shortly after admission, to hospital, a good many of our patients were convalescent, and were acquiring insight into their psychotic symptoms. A frank discussion of the case, followed by an explanatory statement in regard to the origin of the patient's ideas, was then usually sufficient to straighten out the patient's tangle. It is necessary that the hospital to which the patient is sent should have the right atmosphere about it, and that the physicians who have the care of such patients should be men who are well trained to deal with mental disorders. In addition, the treatment should consist of rest in bed, of occupation capable of stimulating interest, and of those general measures which we have been in the habit of using in civil life for improving the individual's health. The crux of the whole matter consists in getting the patient *into the best possible surroundings in the least possible time*, so as to prevent the psychosis from becoming elaborated and set.

In conclusion, I think it is of importance to lay emphasis on the following facts:—

1. In war time the percentage of cases showing the dementia præcox type of reaction becomes greatly increased; the varieties are not clean cut, but roughly it was possible to differentiate them as follows: 67 per cent. showed an hallucinatory paranoid state, 14 per cent. were hebephrenias, 11 per cent. were catatonias, 7 per cent. showed an emotional blunting without any special trend, and one was ungrouped.

2. Under war conditions, cases occur at a simpler level than is the rule with civil cases, and, in consequence, readjustment comes about much more rapidly; this is especially seen in the hallucinatory paranoid types.

3. The essential etiological factors, *e.g.*, make-up and mental conflicts, are similar to those operating under civil conditions, but all the potent factors included under "stress and strain of the campaign" are very powerful contributory factors.

4. The symptomatology has received a war colouring, but in no special degree does it differ from that seen in civil life. The repetition of the same offence, over and over again, and imperviousness to punishment, should draw attention to the patient's mental condition, and should call for a *thorough* examination of the soldier's mental condition.

5. The prognosis is considerably better than is the case with civil cases, due to the cases being received early. Prevention is the key-note to treatment. Those patients previously in asylums, or who have shown definite psychotic traits, should not be enlisted; and in regard to the others, it is essential that they be placed under treatment as soon as mental symptoms manifest themselves.

6. The war has furnished us with the best possible concrete example of the value of the early treatment of mental disorders.

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NOTE ON THE DIAGNOSIS OF FUNCTIONAL ANÆSTHESIA.

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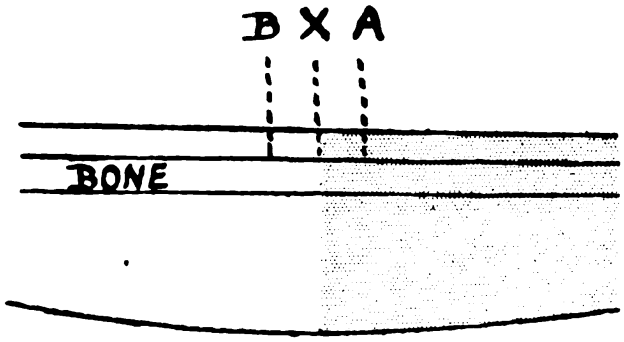
THE diagnosis between organic and functional anæsthesia is a subject which sometimes requires to be carefully considered, and the chief points of difference are well known to all who are interested in nervous diseases. In this note, I desire only to draw attention to one symptom, which is occasionally of diagnostic service in certain cases.

If the anæsthesia is limited to a portion of a limb, or one portion of the body, and if a long bone such as the tibia, ulna, femur, or sternum is situated partly in the anæsthetic area, and partly in the non-anæsthetic area, then the following test is occasionally of diagnostic service. If we find that the vibrating sensation is not felt *anywhere*, when the foot of a large vibrating tuning fork is placed on a subcutaneous part of the bone, just within the area of anæsthesia, but the vibrations are felt when the foot of the vibrating tuning fork is placed on the subcutaneous part of the bone just outside the area of cutaneous anæsthesia, then the case is one of functional anæsthesia (hysteria, malingering, or "idea" anæsthesia).

(If the vibrating sensation is not felt at both these points, no conclusion can be drawn from this symptom alone.)

In the normal condition, when the foot of a large and suitable vibrating tuning fork is placed on the subcutaneous surface of one end or one part of a bone, the vibrations are transmitted all over the bone, and are felt, though with diminished intensity, at distant parts. Hence, if the foot of the vibrating tuning fork is placed on the bone just within the limit of the anæsthesia, though the vibrating sensation may not be felt at that point, the

vibrations will be transmitted to other parts of the bone, and should be felt there if the vibrating sensation of the other part or parts is not lost. If we find, therefore, that the vibrating tuning fork is felt just outside the limit of the anæsthesia area, this indicates that the vibrating sensation is not lost in the bone at this point, and therefore the vibrations should be felt there when the foot of the vibrating tuning fork is placed within the anæsthetic area.



Thus, in the adjacent figure, the shaded part represents the area of cutaneous anæsthesia in functional anæsthesia; X is the limit of the anæsthesia. When the foot of the vibrating tuning fork is placed over the bone at the point A just within the limit of anæsthesia the patient may state that no vibrating sensation is felt. When placed over the bone at the point B, just outside the limit of cutaneous anæsthesia, he may state that the vibrating sensation is felt. If both these answers are given, then the affection may be regarded as functional. The fact that the vibrating sensation is felt when the foot of the vibrating tuning fork is placed at the point B, indicates that the bone sensation at this point is retained. When the tuning fork is placed at A, though the vibrations may not be felt at A, they would be transmitted to B and should be felt at this point. Hence if no vibrating sensation is felt *anywhere* when the foot of the vibrating tuning fork is placed at A (though the vibrations are felt when the foot of the vibrating tuning fork is placed at B), the case is one of functional anæsthesia (hysteria or malingering).

In the *Review of Neurology*, August 1911, I recorded a case indicating the value of this test, and also pointed out its value in the diagnosis of certain cases of functional hemianæsthesia.

ON THE OCCURRENCE OF A CEREBELLAR SYNDROME FOLLOWING HEAT STROKE.

By R. M. STEWART.

(*Continued from page* 93.)

EQUILIBRATION is markedly impaired, while vertigo, nystagmus, and scanning speech may, according to some, be present. Others, however, deny their existence in pure cerebellar lesions, and point out that they may be produced by lesions of the vestibular apparatus and its central nervous mechanisms.

Asynergia, dysmetria, adiadococinesia, and catalepsy are stated by Babinski to be essential symptoms of cerebellar lesion, while Luciani regards asthenia, atonia, and astasia as the essential phenomena of cerebellar defect. Von Monakow, however, denies the importance of the presence of atonia and asthenia.

Of these different symptoms the case described above exhibited an ataxia which was not increased by closure of the eyes, and which occurred in the presence of a perfect sense of position of the limbs. Such simple voluntary movements, such as the opening or closing of the eyes and the phonation of vowel tones, were performed with perfect accuracy, but in the more complex movements as exhibited in the movements of his limbs and in speech he exhibited asynergia and dysmetria. A feature of interest which the writer believes has hitherto not been noted was the presence of dysmetria, not only during the execution of various limb movements, but also in acts requiring the simultaneous movement of synergic muscles on the two sides, as in opening the mouth, protruding the tongue, &c.

Equilibration was markedly affected, although there was complete integrity of the peripheral vestibular apparatus and an entire absence of vertigo.

Adiadococinesia was also a marked symptom, and atonia, which Luciani considers to be one of the most important cerebellar signs (indeed, he regards dysmetria as a natural consequence of atonia), was also present, being more evident in the lower extremities than in the upper—a point which is in harmony with experimental data.

An additional cerebellar symptom first described by Holmes and Stewart was also noted. When the observer suddenly

released either forearm, which the patient was attempting to flex against resistance, the movement of flexion continued so that the hand struck the chest wall, and was not followed by a quick movement of extension which in the normal subject succeeds that of flexion.

Of the symptoms which were not observed, asthenia presents points of interest. Von Monakow has denied that this is an essential symptom, and in this is supported by most clinical observers, while on the other hand Luciani is at some pains to combat their views. In this present case careful search for the presence of asthenia was made without positive result. The movements of all the patient's limbs were not only strong but powerful, and there can be no doubt that no trace of asthenia was present at the time of observation, although in the earlier stages of the illness the patient had been observed to be weak. The case, therefore, strongly supports Von Monakow's attitude.

Another point of interest is the absence of catalepsy—which has been regarded as an essential symptom of cerebellar disease by Babinski. The patient was carefully investigated for the presence of this symptom without positive result, and one cannot but conclude that it is not in reality an essential symptom of cerebellar disease.

As the patient left the hospital early in 1916 it was not possible to employ systematic treatment with a view to the correction of the motor inco-ordination, and, in view of the patient's mental state, it does not appear likely that any pronounced benefit would have accrued.

The writer is indebted to Captain Colin M'Dowell, R.A.M.C., for the facilities for examining this patient, and to Major R. G. Rows, R.A.M.C., for permission to publish the case.

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Letterpress accompanying the Illustrations.

Fig. 1. Cutaneous areas of disturbed sensibility. The black areas are those insensitive to pin-prick; the shaded areas are those of hyperæsthesia to pin-prick; the dotted areas are those of loss of sensation in the hairs.

Fig. 2. Prehension. Dysmetria in grasping a glass of water: the hand is opened so wide that the fingers are actually hyperextended.

Fig. 3. Dysmetria of the lower limb in the performance of the "heel to knee" test: the patient has made too great a flexion of the thigh so that the heel is carried above the knee. Note normal muscular development.

Fig. 4. Dysmetria shown in drinking a small quantity of water: the mouth is opened to an unnecessary degree.

Figs. 5, 6, and 7. Ataxic gait showing asynergia and dysmetria. Note position of the trunk during the forward movements.

Fig. 8. Asynergia of the muscles of the trunk and lower membrane. The lowest attempting to rise to a sitting posture.

Abstracts

ANATOMY.

THE CENTRAL CANAL OF THE SPINAL CORD. S. P. KRAMER, (378) *Amer. Journ. Insan.*, 1918, Oct., p. 193.

IN 1902 the author demonstrated by the injection of vital stains into the spinal canal of the dog a circulation of cerebro-spinal fluid upward through the central canal of the cord to the ventricular system of the brain. He has now examined 206 spinal cords at the Danvers State Hospital, and in fifteen instances, or 7·23 per cent., the central canal was found open throughout. This persistence of the central canal is offered as an explanation of the occasional paralysis of the respiratory centre following lumbar anæsthesia produced by the injection of cocaine.

In regard to the lower opening of the central canal the author agrees with Stilling in believing that the central canal opens into the posterior median fissure of the cord in the region of the conus medullaris. He has been able to demonstrate this lower opening in three spinal cords from young children. Several plates are appended. D. K. HENDERSON.

PHYSIOLOGY.

CONDUCTION IN PERIPHERAL NERVE AND IN THE CENTRAL NERVOUS SYSTEM. (379) E. D. ADRIAN, *Brain*, 1918, xli., p. 23.

AN analysis of peripheral conduction reveals several principles which are of direct importance to neurology. In this article—

which is really a summary of the work of Keith Lucas on the nervous impulse—these principles are outlined. The article cannot be satisfactorily abstracted, but the author's ideas are partially summed up as follows: "We may suppose it to consist of a number of neurones communicating with one another by junctional areas or synapses. The synaptic areas are regions of imperfect conduction; the impulse suffers a decrement as it passes through them, and this decrement is by no means constant, but varies, *inter alia*, with the amount of previous activity to which the neurone has been subjected. The duration of the refractory period, and the extent of the change which occurs in the period of enhanced activity, may vary in the same way, and may have different values in different synapses or different parts of the same synapse. At some point in the synaptic region the passage of a single impulse may initiate a succession of impulses, and at some point conduction is possible in one direction only. The impulses which pass through the central nervous system are of the same nature as those set up in a single nerve-fibre by an electric stimulus, and they behave in the same way in regard to changes in intensity, passage through regions of imperfect conduction, &c."

D. K. HENDERSON.

PSYCHOLOGY.

THE WORK OF THE TELEPHONIST. (Le travail de la téléphoniste.) (380) J. FONTÈGNE and E. SOLATI, *Archiv. de Psychol.*, 1918, Nov., p. 81.

THE bearing of psychology on industrial efficiency is becoming increasingly evident as the science advances. We are beginning to realise the waste which results from a want of wise direction when children are about to leave school and enter upon their life's work. We find that we know neither the qualities demanded by the different kinds of work, nor do we know how to ascertain the aptitudes of the children. Hence the necessity for such studies as the one before us, which takes its place as a contribution to what may be called professional psychology. It is a detailed study of the work of a telephone operator; a determination of the personal qualities demanded by the work; and an account of tests employed with the object of discovering individual aptitude for the work. The tests were tried on twenty-seven telephone girls. Their efficiency, as indicated by the tests, was compared with their actual working efficiency. The correlation was ·541 (P.E., ·091), which, in view of the multitude of factors involved and the tentative nature of the investigation, is fairly satisfactory. MARGARET DRUMMOND.

A CASE OF APHASIA. (**Mémoires d'un médecin aphasique.**) Dr
(381) SALOZ, of Geneva. Edited by Dr NAVILLE. *Archiv. de Psychol.*, 1918, May, p. 1.

THIS account of a case of aphasia is exceptionally important, insomuch as the patient was a physician, and thus able to take a scientific interest in his own ailment. The attack came on suddenly; there was complete motor aphasia, accompanied by agraphia and word-blindness. There was little, if any, word-deafness. There was no loss of consciousness and no disturbance of thought. Dr Saloz diagnosed his own case at once, and promptly began the task of re-education. In this task he was successful, and, as a consequence, we have his own account of the onset and progress of the malady. His death took place six years later, and the editor adds his own comments on the case, together with an account of the results given by the post-mortem examination. MARGARET DRUMMOND.

PATHOLOGY.

INTRACRANIAL ANEURYSMS. HUBERT M. TURNBULL, *Brain*, 1918,
(382) xli., p. 50.

THIS paper has been written in answer to a criticism on a previous paper, "Alterations in Arterial Structure and their Relation to Syphilis." An explanation is given of how the author came to his results in the above paper, and new statistics are given in a comparison between aneurysms occurring in the body generally and intracranial aneurysms. The former occurred in 117 cases, or in 1·73 per cent. of examinations; the latter occurred in 42 cases, or in 0·92 per cent. of examinations.

D. K. HENDERSON.

STIMULATION OF THE MOTOR CORTEX IN A MONKEY
(383) **SUBJECT TO EPILEPTIFORM SEIZURES.** C. S. SHERRINGTON, *Brain*, 1918, xli., p. 48.

A "JEW" monkey (*Macacus fulginosus*) was found to be subject to epileptoid attacks of a characteristic type. The opening movement visible was retraction of the left angle of the mouth, whence contraction spread to all the facial muscles of that side and to the eyes. Then followed spasm of the neck, of the left arm, and of the left leg; the animal fell over to the left side. Finally, the right side became involved, though not so violently as the left. The attack lasted usually about two minutes, the animal seemingly unconscious. The tongue was not bitten, and there was no loss of sphincter control. As many as six seizures were observed in

one week, and the attack seemed to be induced by the taking into the mouth of a large morsel of food.

On exposing the motor cortex of both hemispheres the cranial vault was found to be twice the usual thickness. The exposed cortex was tested by Faradism with the unipolar method. Abnormality of reaction was discovered nowhere except in the "tongue" area of the left hemisphere. Stimulation produced a tongue movement, which quickly became clonic and epileptoid. By no persistence of Faradisation could, however, the epileptoid movement be made to extend beyond the face. The exceptional readiness with which tongue "epilepsy" could be evoked is remarkable, because in the author's experience the tongue area is not one from which epilepsy is usually easily provocable.

D. K. HENDERSON.

(384) **THE INTERDEPENDENCE OF THE SYMPATHETIC AND CENTRAL NERVOUS SYSTEMS.** DAVID ORR and R. G. ROWS, *Brain*, 1918, xli., p. 1.

IN a previous work the authors have shown in experiments with bacterial poisons that the central nervous system can be infected by two paths, the lymph channels and the blood stream. The lymphogenous type of infection is characterised by an inflammatory lesion which spreads by direct continuity. The hæmotogenous lesions are much more difficult to explain, as their anatomical distribution in the spinal cord and brain indicates that in addition to toxicity of the blood stream there is another factor in play which determines where the toxin shall exhibit its primary effect. The affected areas possess this point in common: that they depend upon the pial vascular system for their nutrition. The sympathetic nervous system may be an important factor in determining at which points a toxin circulating in the blood shall exercise its primary action upon the central nervous system. The above statement is based on the study of the non-systemic lesions in the spinal cord, and from the anatomy, physiology, and embryology of the autonomic system. These non-systemic lesions are characterised by atrophy of the myelin sheath and sclerosis, and are dependent on some toxic condition of the blood stream by some obscure mechanism. In this paper the authors give the results of the study of such lesions in visceral cancer, in Addison's disease, and a description of subacute combined sclerosis. In all these three groups of cases the type of lesion is essentially the same, but varies in degree. The site of the lesion is practically the same in all, especially in the posterior column: the late involvement of the fibres in the grey horns is a constant feature. In the cancer cases there is atrophy and absorption of the myelin sheath,

but no evidence of axis-cylinder change. In Addison's disease greater damage is produced; the lesion is more extensive; the adventitial lymph sheaths in the posterior columns are filled with fatty substance; degenerative patches are found in which the axis-cylinders show a true Wallerian degeneration. In subacute combined sclerosis the morbid lesion is even more advanced. In the area of concentration, the mid-dorsal region, the axis-cylinders have been attacked, and there is ascending and descending degeneration.

These lesions cannot be explained on a "general intoxication" theory, and the authors bring forward evidence to show that the sympathetic system is probably the intermediary in determining the localisation of the lesions. The spinal lesions can be correlated with the spinal distribution of the thoracico-lumbar sympathetic system; they are due to some interference with the thoracico-lumbar sympathetic reflex, caused possibly by pathological stimuli, or by the absence of substances which maintain its balance, *e.g.*, adrenalin. The pial vessels, in consequence, dilate; their permeability is increased; the diffusion of noxious substances is facilitated; a progressing and ever-widening circle of atrophy and sclerosis results. D. K. HENDERSON.

CLINICAL NEUROLOGY.

THE PREDISPOSING FACTORS OF WAR PSYCHO-NEUROSES.

(385) JULIAN M. WOLFSOHN, *Lancet*, 1918, i., Feb. 2, p. 177.

FROM this study of 100 cases of war psycho-neuroses and 100 cases of somatic injuries produced in the firing line, the following conclusions were drawn:—

Cases of war-neurosis are very rarely associated with external or somatic wounds. The vast majority of the psycho-neurotic cases studied were among soldiers who had a neuropathic or psychopathic soil. In 74 per cent. of these cases a family history of neurotic or psychotic stigmata, including insanity, epilepsy, alcoholism, and nervousness, was obtained, whilst a previous neuropathic constitution in the patient himself was present in 72 per cent.

A gradual psychic shock from long-continued fear, together with the sudden change from quiet, peaceful environment to the extraordinary stress and strain of trench fighting, is the chief predisposing cause of war psycho-neurosis in soldiers with neuropathic predisposition. In fact, these factors may be the cause of the neurosis *per se*.

The history of the individual previous to enlistment has an

influence on the character and gravity of the symptoms of the neurosis.

Acquired neuroses with their less severe symptoms appeared only after excessive fatigue, with the concussion from the high-explosive detonation acting as the exciting factor.

On the other hand, in the same abnormal environment and with the same powerful factors obtaining, wounded soldiers do not suffer from war neuroses except in rare instances. In the wounded soldiers studied no neuropathic or psychopathic stigmata occurred in the family history.

Previous neuropathic tendencies were found in 10 per cent. of these patients (controls), all of which number presented mild neurasthenic symptoms. Hysterical manifestations; such as monoplegia in a wounded limb, are occasionally encountered in injured soldiers. A. NINIAN BRUCE.

PLANTAR CREMASTERIC REFLEX. POPLITEAL REFLEXES.

(386) **(Reflesso plantare-cremasterico. Reflessi poplitei.)** A. ROCCAVILLA, *Riforma med.*, 1918, xxxiv., p. 766.

ROCCAVILLA describes three new reflexes, viz., a cutaneous plantar cremasteric reflex, and two musculo-tendinous reflexes, distinguished anatomically as the internal and external popliteal.

The plantar cremasteric reflex is not constant, because it is only obtained under special conditions of the plantar cutaneous reflectivity, and of cremasteric hyperexcitability. It consists in the fact that stimulation of the sole does not cause any movement of the toes, but produces a cremasteric reflex on the same side, or much more frequently on both sides or on the opposite side without a simultaneous contraction of the tensor fasciæ femoris or other muscles. Roccavilla has found the sign most frequently in sciatic neuritis, and has also observed it in hysteria, in polyneuritis, and in toxic infection, and traumatic war neuritis of the lower limbs, in reflex paralysis, in several diffuse or localised cerebral diseases, etc.

The popliteal reflexes are present physiologically in all individuals. The internal popliteal reflex may be obtained by stimulating the joint tendon of the semi-membranosus and semi-tendinosus and the external reflex by stimulation of the tendon of the biceps. The reflex is best obtained by placing the patient in the prone position, slightly flexing the leg, and striking the united semi-membranosus and semi-tendinosus tendon rather than the biceps tendon two fingers' breadth above a horizontal line bisecting the popliteal space, when a movement of flexion and axial rotation of the leg on the thigh is obtained. The importance

of the popliteal reflex is that it is exclusively supplied by the sacral plexus, and its investigation is therefore specially indicated when it is desired to determine the position of a spinal lesion. The following anomalies may be observed in the popliteal reflexes:—

1. Exaggeration, which may amount to flexor clonus of the leg, found in local or general musculo-tendinous excitability.

2. Sluggishness, which may amount to complete loss of both reflexes, found in general or local asthenia, neurasthenia, tabes, some forms of hysteria, flaccid paralysis of hemi- or paraplegic origin, sciatic neuritis, and total interruption of the cord.

3. Dissociation of the two reflexes, the internal, contrary to the normal, being weaker than the external.

4. A paradoxical irradiation characterised by the stimulus applied to one of the two reflexes being propagated, and sometimes with greater intensity to the other.

5. Complete inversion of the reaction, stimulation of the tendons causing a sudden extension instead of flexion of the leg on the thigh. This anomaly, which appears to be due to the simultaneous existence of popliteal hypo-reflectivity and exaggeration of the knee jerk, is found in certain irritative stages of sciatic neuritis, and in war contractures of the lower limbs.

J. D. ROLLESTON.

A CASE WITH ALMOST COMPLETE LOSS OF REFLEXES.

(387) (**Ein Fall von fast totaler Areflexie.**) TRÖMNER, *Deutsche med. Wchnschr.*, 1918, xliv., p. 1455.

AT the Hamburg Medical Club, Trömner showed a soldier, aged 29, with complete loss of knee and ankle jerks, while only traces of the knee flexors and arm reflexes were present. The blood and cerebro-spinal fluid were quite normal and the organs were healthy, apart from a slight chronic tuberculosis of both upper lobes. Such cases are extremely rare. Some years ago Piligäus stated that an absence of the knee jerks occurred in 0·04 per cent. of healthy persons; but even this figure must be regarded as too high. Improvement in technique and diagnosis shows that the reflexes are almost constantly present. Trömner has seen another case of absence of reflexes in an individual who was perfectly healthy, even from a serological point of view. In addition to loss of knee jerks he had always been impotent, so that he was probably an example of congenital spinal weakness. The present case showed no spinal symptoms. The slight degree of tuberculosis could only have converted a constitutional weakness of the reflexes into a complete absence. J. D. ROLLESTON.

PILOMOTOR REACTION, OR "GOOSE-FLESH" IN LESIONS AND
(388) **WOUNDS OF THE NERVOUS SYSTEM. (Réactions ansérines ou pilomotrices dans les lésions et les blessures du système nerveux.)** ANDRÉ-THOMAS, *Paris méd.*, 1918, ii., p. 16.

THE writer records the results of his investigations in lesions of the peripheral nerves, sympathetic, spinal cord, and brain by the application of mechanical, thermal, electrical, or chemical stimuli to the skin. The pilomotor reaction produced by a peripheral irritation remains, as a rule, unilateral. In some individuals the reaction is more general, and affects symmetrical parts of the body, but is always more active on the side stimulated. Although in the great majority of cases examination of the pilomotor system is unnecessary for diagnostic purposes, it may sometimes be of service in determining the reality, situation, extent, or degree of gravity of a lesion, and its investigation should not therefore be entirely neglected, provided that the asymmetry or unequal distribution of the reaction is quite definite. Pilomotor reactions vary considerably in different persons in the normal condition, and very probably at different times, and for this reason such constant results cannot be obtained, as in the case of tendon bone and periosteal reflexes. We may, however, be able to derive some information which may be of interest, not only from the clinical, but also from the physiological standpoint.

J. D. ROLLESTON.

A CASE OF COMPLETE ANATOMICAL SECTION OF THE
(389) **DORSAL CORD. SUTURE OF THE CORD. SURVIVAL FOR EIGHT MONTHS. (Sur un cas de section anatomique complète de la moelle dorsale. Suture de la moelle. Survie de huit mois.)** H. CLAUDE et J. LHERMITTE, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, 3 sér., xlii., p. 1051.

A SOLDIER, aged 22, was wounded by a shell splinter in the dorsal region on 18th June 1916. Complete paraplegia and retention of urine developed. The following day bony fragments and a shell splinter were removed from the cord, and meningo-myelorrhaphy was performed. Death took place on 20th February 1917. The necropsy showed the existence of a complete section of the cord at the level of the ninth dorsal segment, where the spinal tissue was merely represented by a neuroglia framework containing numerous granular bodies; the eleventh segment had also undergone softening, and possessed no functional value; and it was only in the twelfth segment that the structure of the cord resembled the normal. In spite of the complete section of the cord, the knee jerks reappeared six months after the onset of the affection, and persisted till death. The plantar reflex on one

side was extensor, contrary to what has been noticed in other cases. An extensor plantar reflex should therefore not be regarded as a sign of incomplete section. Defensive reflexes, automatic movements, and erections were quite distinct, indicating a functional activity, and even an excitable state of the lower segment of the cord. As regards subjective sensibility, the patient frequently stated that he felt certain vague sensations in the feet. This apparently paradoxical occurrence has been observed by the writers in other cases of complete anatomical section, and resembles the hallucinations experienced by the amputated, being due to stimulation of the central end of the divided cord. The two segments of the cord were separated by an interval of 1 cm., which was filled by a compact mass of fibrous tissue, containing a long splinter of bone. Histologically this fibrous tissue did not contain any trace of a nerve fibre or axis cylinder, and there was no evidence of regeneration, either at the central or peripheral end of the cord. The writers are of opinion that myelorrhaphy is contraindicated in this case as well as in the late stage of section of the cord, as it may give rise to complications and, far from relieving the patient, may only give rise to disappointment. J. D. ROLLESTON.

STAB WOUND OF SPINAL CORD. E. MONTANA and M. RUEDA,
(390) *Repertorio de Med. y Cir., Bogota*, 1918, ix., p. 623.

A CASE of compression of the spinal cord by a fractured vertebra with partial section of the cord. The symptoms indicated that the right posterior roots had been severed along with the direct and crossed pyramidal tracts of the same side. The operation consisted in lifting up the compressing vertebra and clearing out clots, &c., leaving a rubber drainage tube. Relief and recovery followed, but it was thought that laminectomy would have been preferable. The authors think this is perhaps the first case of recovery following such a serious injury. A. NINIAN BRUCE.

DIRECT CONCUSSION OF THE SPINAL CORD. (Les commotions
(391) **directes de la moelle épinière.)** H. CLAUDE and J. LHERMITTE,
Presse méd., 1918, p. 514.

THE writers have reserved the term "direct concussion" for those cases where the projectile, without reaching the dura mater, passes through the bodies of the vertebræ, or fractures one or more spinous or transverse processes, the term indirect concussion being applied to the syndrome which results from the explosion at a distance of large shells and the shock produced by sudden changes of pressure. In indirect concussion the violence of the shock affects the tissue of the spinal cord, giving rise to a series of

pathological phenomena of all degrees of severity. The symptoms of direct concussion may be caused not only by a direct injury to the spinal cord, but also by passage of the projectile into the muscular masses or bony surfaces by the side of the spine. The symptoms vary, according to the region of the spine affected and not according to the mode of concussion. The greatest variety of syndromes is found after concussion of the cervical region of the spinal cord, as the writers have shown in a previous paper. Concussion of the dorsal region is frequent, and the symptoms range from a simple and rapidly curable paralysis to a syndrome of complete section of the cord. A striking feature is the rapidity with which the motor, sensory, and reflex functions may be restored, at least partially, in cases of dorsal concussion. A paraplegia, which was flaccid at first, often becomes transformed into a spasmodic paraplegia without much disturbance of sensibility. Direct concussion of the lumbar or sacral cord is much rarer, and does not present any special features. The opinion generally held, that concussion of the brain and cord is due to the existence of hæmorrhagic foci dividing or compressing certain nerve tracts, was shown by the writers in 1915 to be inaccurate. Although concussion may give rise to hæmorrhages in the brain or cord, the changes characteristic of concussion are different, and are either diffuse or limited. The latter, which the writers have described by the name of *insular necrosis*, consist of more or less extensive foci, generally situated opposite the point of application of the vertebral or paravertebral traumatism. Histological examination of these areas shows that the nerve elements, such as the axis cylinders, myelin sheaths, and nerve cells are in the course of being destroyed, or are already completely transformed in contrast with the neuroglia, vascular, or connective tissue elements, which show active proliferation. The process is thus one of pure necrosis without thrombosis or hæmorrhage. Side by side with the areas of insular necrosis is to be found a diffuse lesion, which the writers have called *acute primary degeneration of the spinal fibres*. The lesions are completely invisible to the naked eye, but microscopical sections stained by silver nitrate show the axis cylinders broken up and swollen in places. The nerve fibres are sometimes retracted and twisted. The fibres are surrounded by granular bodies derived from the neuroglia, and by amœboid cells from the same source, which dissociate the nerve fibres by their protoplasmic processes. In comparison with the white fibres, the grey matter shows comparatively little damage. The anatomical changes caused by concussion of the spinal cord are not limited to the grey and white matter, but involve the ependymal canal and posterior roots to a remarkable degree.

J. D. ROLLESTON.

SYMPATHETIC SYNDROME IN THE UPPER LIMBS FROM
(392) **CONCUSSION OF THE CERVICAL CORD. (Syndrome sympathique des membres supérieurs par commotion de la moelle cervicale.)** C. SOLLIER and P. COURBON, *Presse Méd.*, 1918, p. 646.

THE writers record four cases to show that in injuries of the cervical cord a syndrome may be found characterised by sympathetic symptoms, the most prominent of which is œdema of the extremities. These symptoms may be due to involvement of the sympathetic at its origin within the cord or in its passage in the nerve roots. In the absence of an autopsy the pathogenesis of the syndrome is uncertain, but the writers adopt the hypothesis of a hæmatorrhachis causing slight compression of the posterior part of the cord, or the roots, which would explain why the phenomena observed are related to the wounded region of the cord.

J. D. ROLLESTON.

CLAUDE BERNARD-HORNER'S SYNDROME AFTER AN AERO-
(393) **PLANE CRASH. (Syndrome de Claude Bernard-Horner consécutif à une chute d'avion.)** G. GUILLAIN, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, xlii., p. 761.

AS the result of a "crash" on landing, an airman, aged 23, lost consciousness for some hours, and on examination presented a typical Claude Bernard-Horner syndrome, *i.e.*, narrowing of the palpebral fissure, pseudo-ptosis, exophthalmos, myosis, and normal reaction of the pupils. There was no paralysis of any kind of the brachial plexus, and the reflexes in the right upper limb were perfectly normal. On examination four months after the accident the condition was found to be unchanged, and there was also a diminution of sweating on the right side of the face. The maximum and minimum arterial pressure was the same in the two radials.

According to Guillain, this is the first case on record of isolated paralysis of the sympathetic, following an aeroplane crash, without paralysis of the lower segment of the brachial plexus.

J. D. ROLLESTON.

MULTIPLE NEUROFIBROMATOSIS (VON RECKLINGHAUSEN'S
(394) **DISEASE) AND ITS INHERITANCE: with description of a case.** S. A. PREISER and C. B. DAVENPORT, *Amer. Journ. Med. Sci.*, 1918, clvi., p. 507.

THE writers describe the occurrence of von Recklinghausen's disease in a father, aged 45, and son, aged 17, with the autopsy findings in the case of the father in whom the disease lasted

thirteen years. In the son the disease was associated with definite mental infirmity and delayed sexual development. The paper contains a review of 243 cases of multiple neurofibromatosis, with an analysis of 30 cases of the familial type. J. D. ROLLESTON.

NEWER EXAMINATIONS ON THE ETIOLOGY OF THE DIS-
(395) **SEMINATED SCLEROSIS.** KNUD H. KRABBE, *Ugeskrift for Læger* (Copenhagen), 1918.

THE author gives a general view of the relative few works which exist on experimental examinations of the etiology of disseminated sclerosis, viz.:—Bullock, Ceni and Bestaol, Jürgens, Siemerling and Raecke, Simons, Steiner and Kuhn. The results are contradictory, and none of them prove that disseminated sclerosis is an infectious disease. The author has made himself some few inoculations of spinal fluid from patients with disseminated sclerosis in monkeys (macacus) and rabbits; the results were negative. In spite of these negative results he considers that it is most probable that disseminated sclerosis is infectious, and suggests that long series of inoculations from acute stages of disseminated sclerosis perhaps would give positive results.

AUTHOR'S ABSTRACT.

A NEW FAMILIAL, INFANTILE FORM OF DIFFUSE BRAIN
(396) **SCLEROSIS.** KNUD H. KRABBE, *Brain*, 1916, xxxix., p. 74.

THE author describes the histories of five cases and anatomo-pathologically the three cases of a disease which seems before only to have been very little described. It shows the following characteristics: it is usually a hereditary disease; it sets in somewhat acutely about the fifth month in a child who up to then has been quite healthy; it progresses on a chronic course, ending with death five to six months after the onset; universal rigidity of the musculature, violent tonic spasms, probably causing pain, and brought on by touching or noise, form characteristic symptoms. As a rule, nystagmus is present, and in the latter stages atrophy of the optic nerve. Periodic elevations of temperature occur, without perceptible cause, outside the central nervous system. Finally, extensive paresis and pronounced debility close the scene. The intellect seems scarcely to be developed, and the little that is developed seems rapidly to perish. The anatomo-pathological findings are: a marked hardness of the white substance of the brain without alteration of its shape. Microscopical examination of three cases showed relative intactness of cortex and the basal ganglia, the nervous centres of the brain and of the spinal cord; destruction of the medullary sheaths and axis cylinders throughout the white substance of the cerebrum

(a 2 mm. layer, however, is preserved immediately under the cortex). Complete destruction of the white matter of the cerebellum and degeneration of the spinal nerve tracts are present. The destroyed tissue is replaced by dense fibrillar glia, in which are seen a considerable number of variously shaped glia cells, mostly protoplasmic; the vessel sheaths are infiltrated with fatty granule cells and other apparently gliogenous scavenger cells. There is a total want of new formation of vessels or infiltration of the vessel sheaths with plasma cells, lymphocytes, or leucocytes.

Cases as the above described have before been classified as diffuse brain sclerosis. The diffuse brain sclerosis, however, is a collective name for at least three different diseases: (1) brain syphilis, which produces extended destruction of the brain substance and substitution with neuroglia so that the brain is changed to a hard gliotic substance; (2) Schilder's encephalitis periaxialis diffusa which, perhaps, are cases of disseminated sclerosis with plaques of enormous extension; (3) the above described cases, and an older case of Beneke. These cases must be regarded as a purely degenerative and not as an inflammatory process. They are belonging to the large groups of the hereditary nerve diseases (Friedreich's disease, Huntington's chorea, the muscle dystrophies, &c.). Between these diseases the here described forms of brain sclerosis present a certain relationship to Pelizæus-Merzbacher's disease, aplasia axialis extracorticalis congenita, on one side, and to Tay-Sach's form of familial amaurotic idiocy on the other side. In other respects it differs conspicuously from both the groups. AUTHOR'S ABSTRACT.

A CASE OF CIRCUMFLEX NERVE PARALYSIS FOLLOWING
(397) **A CARBUNCLE.** L. F. HERZ, *Med. Record*, 1918, xciv., p. 149.

COMPLETE paralysis of the right circumflex nerve developed with atrophy of the right deltoid. Rapid improvement followed electrical treatment, exercises, and massage. J. D. ROLLESTON.

DISSOCIATED PARALYSIS OF THE INTERNAL POPLITEAL
(398) **FROM WOUND OF THE TRUNK OF THE SCIATIC. (Paralisi dissociata del popliteo interno per ferita del tronco della sciatica.)** V. SCARPINI, *Riv. ital. di Neuropatol., Psichiatr. ed Elettroter.*, 1918, xl., p. 305.

NUMEROUS French and Italian neurologists during the war have demonstrated the frequency with which lesions of the trunk of the sciatic which do not completely divide the nerve give rise to exclusive or predominant paralysis of the muscles supplied by the

external popliteal nerve. Of forty-three cases of lesions of the trunk of the sciatic admitted to the neuropathological Clinique at Sienna, in twenty in which the wound had involved the nerve in the hip or buttock, the paralysis was limited to the external popliteal nerve. Involvement of the internal popliteal nerve in these cases, as is the general rule, was shown merely by more or less severe pain, continued with vasomotor and trophic symptoms. In four cases, on the other hand, one of which was due to a gunshot wound and the rest to a bomb wound, there was complete paralysis of the internal popliteal nerve, while the external popliteal nerve was practically normal. The writer is of opinion that the frequency of dissociated paralysis of the external popliteal cannot be explained by the fascicular topography of the sciatic nerve, but attributes it to the greater vulnerability of the fibres of the external popliteal, as is shown by the greater frequency with which it is affected by other causes, *e.g.*, alcohol, arsenic, and lead. J. D. ROLLESTON.

DIAGNOSTIC VALUE OF THE OCULAR SYNDROME OF HYPER-
(399) **TENSION IN WOUNDS OF THE SKULL. (Valeur diagnostique du syndrome oculaire d'hypertension dans les blessures du crâne.)** F. TERRIEN, *Paris Méd.*, 1918, ii., p. 277.

IN addition to varieties of hemianopsia frequently observed in wounds of the skull, and due to intracerebral lesions of the optic tracts or of the optic centres in the neighbourhood of the cuneus, a series of visual disturbances may be found much more rarely in wounds of the skull or as a sequel of trephining, not corresponding to any definite anatomical lesion, but merely due to intracranial hypertension. This condition gives rise to a syndrome consisting of three essential symptoms, viz., attacks of transient diplopia, narrowing of the visual field, and papillary stasis. All these symptoms are of short duration, and can be caused to disappear by lumbar puncture. J. D. ROLLESTON.

HYPERTENSION OF THE CEREBRO-SPINAL FLUID WITH
(400) **CHOKED DISC AND LOSS OF TENDON REFLEXES FOLLOWING LIGATURE OF THE INTERNAL JUGULAR VEIN FOR A WOUND OF THE CERVICAL REGION. (Syndrome d'hypertension du liquide céphalo-rachidien avec stase papillaire et aréflexie tendineuse consécutivement à la ligature de la veine jugulaire interne pour plaie de guerre de la région cervicale.)** G. GUILLAIN, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, xlii., p. 757.

A SOLDIER, aged 22, was wounded in the left parotid region by a shell splinter, which caused profuse hæmorrhage, left peripheral

facial paralysis, and paralysis of the branch of the left spinal accessory to the sterno-mastoid and trapezius. A few days later a wound of the internal jugular was found, and the vein was ligatured. When examined five weeks later the patient complained of very severe diffuse headache and numbness in the right upper limb. The knee jerk was lost on the right side and very weak on the left. The tendo-Achillis and medio-plantar reflexes were very weak on the right and normal on the left, and the posterior tibio-femoral and fibulo-femoral reflexes were lost on both sides. In the upper limb the stylo-radial, radial, and ulna-pronator reflexes, the olecranon reflex, and reflexes of the biceps and flexors of the unit were lost. The plantar and abdominal reflexes were normal. Ophthalmoscopic examination showed œdematous optic neuritis on both sides and multiple peripapillary hæmorrhages. Lumbar puncture showed that the pressure of the cerebro-spinal fluid was from 70-80 cm. of water, as compared with the normal 8-10 cm. of water. Considerable improvement ensued as the result of three lumbar punctures before the patient was evacuated to the base.

J. D. ROLLESTON.

COMPLETE VERBAL AMNESIA AND HOMOLATERAL PARALYSIS FROM HÆMORRHAGE IN THE TEMPORAL LOBE. (401) **(Amnesia globale delle parole e paralisi omolaterale da emorragia del lobo temporale.)** F. GIANNULI, *Riv. di Patol. nerv. e ment.*, 1918, xxiii., p. 73.

GIANNULI records an illustrative case in a woman, aged 59, and comes to the following conclusions :—

1. Complete verbal amnesia is a specific syndrome of lesions situated in the left temporal lobe.

2. Homolateral paralysis may form part of the syndrome of lesions of the temporal lobe.

3. This paralysis illustrates the anatomical relations existing between the temporal lobe on one side, and the Rolandic area in the opposite hemisphere, which are presumably established by tracts crossing in the corpus callosum and passing through the external capsule.

The decussation of the tracts in the corpus callosum may, under special circumstances, neutralise the clinical and anatomical effects of the decussation of the pyramidal tracts in the medulla, giving rise to homolateral paralysis. J. D. ROLLESTON.

A CASE OF CEREBRO-SPINAL MENINGITIS SUCCESSFULLY
(402) **TREATED BY INTRASPINAL AND INTRAVENTRICULAR ADMINISTRATION OF ANTI-MENINGITIS SERUM.** T. A. Hoch, *Boston Med. and Surg. Journ.*, 1918, clxxviii., p. 32.

A RECORD of a case in a man, aged 31, who was first treated by intraspinal injections of anti-meningitis serum, and subsequently, when the symptoms did not subside although the lumbar puncture fluid was clear and sterile, by two injections into the right and three into the left ventricle.

The disease was complicated by partial deafness of both ears, left facial paralysis, orchitis, and nephritis, but complete recovery, apart from a right nerve deafness, ultimately took place.

J. D. ROLLESTON.

AN EXCEPTIONAL RECOVERY FROM CEREBRO-SPINAL
(403) **FEVER.** D. SMITH, *Practitioner*, 1919, cii., p. 282.

D. SMITH records a case of cerebro-spinal fever in a soldier, aged 19, which was remarkable in the following respects:—(1) Purpuric rash going on to ulceration, and from which a positive culture was obtained; (2) recovery after four days' rectal feeding; (3) complete recovery from complications (otitis and rhinitis); (4) absence of head retraction and Kernig's sign at the onset.

J. D. ROLLESTON.

ACUTE MENINGOCOCCIC ENDOCARDITIS AND SEPTICÆMIA.
(404) E. B. KRUMBHAAR and J. H. CLOUD, *Journ. Amer. Med. Assoc.*, 1918, lxxi., Dec. 28, p. 2144.

THREE cases are described of fatal cerebro-spinal meningitis with acute meningococcic vegetations on the aortic and mitral valves at autopsy. A petechial rash suggested that a septicæmia was present, and that intravenous and intrathecal medication was indicated. In the ordinary non-fulminating, non-petechial type of meningococcus infection (whether or not meningococci have temporarily entered the blood stream), the chief lesion is undoubtedly in the meninges, and the chief route of specific treatment should be intrathecal. The disappearance of meningitic symptoms, with persistence of signs of septicæmia, should be an indication to substitute intravenous for intrathecal treatment, although if actual vegetations are present on the valves, it will rarely, if ever, be successful. If meningococci can be determined in the blood stream before the onset of meningitis, intravenous treatment may abort an otherwise fulminating case. Meningococci may persist in smears from the spinal fluid after they have failed to grow on suitable mediums; but even if absent in both tests, specific therapy should be continued until meningitic symptoms have disappeared.

A. NINIAN BRUCE.

TEN CASES OF INVOLUNTARY MOVEMENTS OF RAPID
(405) **DEVELOPMENT POSSIBLYCONNECTED WITH LETHARGIC ENCEPHALITIS. (Dix cas de mouvements involontaires, d'apparition rapide pouvant se rattacher à l'encéphalite léthargique.)** P. MARIE et G. LEVY, *Bull. et mém. Soc. méd. Hôp. de Paris*, 1918, 3e sér., xlii., p. 1081.

DURING the months of July, August, and September, 10 cases attended the Salpêtrière for involuntary movements of the limbs, trunk, and face, which varied in form from one patient to another, but nevertheless presented very distinct resemblances to one another. The majority of the patients were aged between 20 and 30. The symptoms had developed after a febrile attack in 7 of the cases, in 4 of which there had been somnolence, in 1 visual disturbance, and in 2 ptosis and diplopia. Of the 3 cases without any history of a febrile attack, one had had somnolence and ptosis. None of the patients had a neuropathic history. In 5 of the patients the movements were unilateral, at least at the onset, in the other 5 they were bilateral. The writers regard the condition as a sequel, if not an incomplete form, of an epidemic infection resembling lethargic encephalitis. The lesions were probably situated, like those of chorea, in the crus cerebri.

J. D. ROLLESTON.

FALSE HEREDITY. KNUD H. KRABBE, *Ugeskrift for Læger* (Copen-
(406) hagen), 1918.

TWO cases, father and son, showed a very marked tremor—coarse, slow, synchronic, rhythmic tremor increased on voluntary movements. Both disseminated sclerosis and Parkinson's disease were to be excluded. It was first thought to be a hereditary tremor. Further examinations showed that it was a mercurial tremor; the father had had a business in which he for thirty-five years had filled thermometers with mercury. The son had inherited the business, and by this "false heredity" also got the tremor, as he for twenty-seven years had boiled mercury in the thermometers. AUTHOR'S ABSTRACT.

ANOTHER CASE OF FAMILIAL PERIODIC PARALYSIS (ACETO-
(407) **NURIA DURING THE ATTACKS). (Un altro caso diparalisi periodica famigliare (Acetonuria durante gli accessi).** C. PASTINE, *Ric. di Patol. nerv. e ment.*, 1918, xxiii., p. 224.

A RECORD of a case in a man, aged 37, who was sent to hospital with the diagnosis of periodical hysterical paralysis. The attacks were preceded by a vague sense of general weakness, or of weakness in the lower limbs, with a slight painful sensation in the

calves. In the course of twelve to twenty-four hours complete motor palsy set in, involving the lower limbs, trunk, upper limbs, and a considerable portion of the neck muscles. The masticatory muscles were more or less weakened, as well as the pharynx, and sometimes those of articulation. Complete paralysis lasted a day or two, began to subside, returned for half or a whole day, and then disappeared rapidly. While the paralysis lasted, the tendon reflexes were abolished, and the cutaneous reflexes were also lost, or only just present. Sensibility, superficial and deep, was preserved. Electrical excitability, Faradic and galvanic, was considerably diminished, but not completely abolished. The return of movements might begin both in the upper and lower limbs, either on one side or on the other, and not always in the inverse order to that in which it had set in. During the onset and height of the disease the urine contained acetone, which disappeared as the paralysis subsided, and was replaced by acid sodium urate.

A remarkable feature of the present case was that no other member of the family was similarly affected.

J. D. ROLLESTON.

PELLAGRA AT THE CONNECTICUT HOSPITAL FOR THE INSANE. WILLIAM C. SANDY, *Amer. Journ. Insan.*, 1918, October, p. 211.

(408)

FIVE cases are reported, and are of great interest. Four of these were cases of dementia præcox, and the fifth was a high grade feeble-minded woman with congenital absence of the palate, and a positive blood Wassermann. In all of these cases, with one exception, the pellagra symptoms developed after an hospital residence of two years or more; the exception was a case which had been in hospital for five months. The lesions were symmetrical, there being an erythema of the backs of the hands extending in some cases above the wrists, and later developing into a dermatitis with ulcerations. There were also gastric disturbances, seborrhœa about the nose, inflammation of the mucous membrane of the mouth and tongue, with marked salivation and diarrhœa.

All of the dementia præcox patients had been faulty in their diet; some refused food, others were difficult to feed, and all were in an emaciated condition. The feeble-minded woman died while in a well-nourished condition, but this, though atypical, is not unknown.

The skin and mucous membrane symptoms did not make their appearance in any special time of the year, one case developing in the spring, one in summer, one in the autumn, and two in the winter.

D. K. HENDERSON.

EXCESS OF GLUCOSE IN THE CEREBRO-SPINAL FLUID OF NON-DIABETIC ORIGIN. (Les hyperglycorachies non diabétiques.) P. Weil, *Ann. de méd.*, 1918, v., p. 463.

(409)

Weil reviews the most important causes of increased glucose content of the cerebro-spinal fluid apart from diabetes. He calls attention to the fact that affection of the peripheral motor or sensory neurones may be followed by an increase in the amount of glucose in the cerebro-spinal fluid. This is frequently seen in cases of so-called "shell shock" and similar war neuroses. It is possible, by determination of the amount of glucose, to differentiate between cases where there are organic lesions of the nervous system and cases where the symptoms are simulated. In ordinary epilepsy a slight increase in the glucose content is common, but in Jacksonian epilepsy, and in all cases in which there is an increased intra-cranial tension the increase in the amount of glucose is very pronounced. Weil believes that a slight increase in the glucose content is due merely to the associated congestion, and that a pronounced increase is the result of irritation of the centre regulating sugar metabolism in the floor of the fourth ventricle. In pathological processes involving the meninges the amount of glucose in the cerebro-spinal fluid depends on two factors: in purely congestive conditions the amount of glucose is increased, while in conditions due to the action of bacteria it is decreased. In the very early stages of cerebro-spinal meningitis, when congestion is pronounced and the micro-organisms are comparatively few, the amount of glucose in the cerebro-spinal fluid is increased as well as at the end of the disease, when the micro-organisms are fewer in number, but during the course of the disease it is markedly decreased. Frequent estimation of the sugar content is a guide to prognosis, as an increase of the glucose is often the first indication of improvement. In syphilitic meningitis the glucose content is generally increased. In conditions of the nervous system, where malingering is suspected, the determination of the amount of glucose is of great importance, for an increase in the glucose may be the only sign of an organic lesion.

J. D. Rolleston.

TRAUMATIC EPILEPSY. FUNCTIONAL HEMIPLEGIA FROM A WAR WOUND. (Epilepsie traumatique. Hémiplegie fonctionelle. Plaie de guerre.) R. Benon et G. Lerat, *Rev. de méd. path.*, 1916, xxxv., p. 734 (published in October 1918).

(410)

The record of a case of a soldier, aged 39, who was wounded in the right fronto-parietal region by a shell splinter. He was taken prisoner in September 1914, trephined in Germany, and repatriated in February 1916.

When examined in April 1916, in addition to traumatic epilepsy and functional left hemiplegia, he was found to be suffering from mental disturbances characterised by confusion, ideas of persecution and auditory hallucinations. The epileptic attacks became less frequent, but the hemiplegia and the mental disturbances persisted, though in a less pronounced degree.

J. D. ROLLESTON.

TOBACCO AMBLYOPIA IN WAR TIME. (Die Tabaksamblyopie in der Kriegszeit.) O. FEHR, *Berl. klin. Wochnschr.*, 1918, lv., p. 854.

(411)

FEHR has recently seen in private practice six cases of tobacco amblyopia, which has hitherto been regarded as a very exceptional disease. Uhthoff found that it occurred in only 0·07 per cent. of his out-patient cases. Private information which Fehr has received from other medical men, as well as a recent article by Erlanger, show that this unusual number of cases is not a mere coincidence, but is caused by the injurious influences of war time. All Fehr's cases showed the characteristic picture of tobacco amblyopia in which diminution of visual power takes place gradually and simultaneously in both eyes, being caused by the appearance of a central scotoma in an otherwise normal visual field. The ophthalmoscope usually shows a typical pallor of the temporal half of the disc, even at the beginning of the disease, though in many cases the optic nerve is at first normal. Inflammatory phenomena at the papilla are rarely observed. The course of the disease is a chronic one, and the prognosis relatively favourable, as complete atrophy and blindness hardly ever occur, and, as a rule, considerable improvement of vision soon takes place on abstinence from tobacco, provided the condition is not too far advanced. Complete recovery is possible, although as a rule, even in the most favourable cases, a slight diminution of visual power and a small central scotoma persist. All Fehr's patients were heavy smokers, and consumed eight to twelve cigars a day. Alcoholism could be excluded, for the war has caused a considerable limitation in the consumption of alcohol; beer is bad and poor in alcohol, schnaps and liqueurs are difficult to obtain, and wine has become very dear. So that although cases of tobacco amblyopia have become more frequent at this advanced stage of the war, alcoholism cannot be held responsible. There are three possible factors which may be the cause of the increase in tobacco amblyopia. In the first place, there is more smoking now than in peace time, both in the trenches and at home, to relieve nervous tension, cares, and privations, especially as other stimuli, such as tea and coffee, are increasingly difficult to obtain. In Germany the annual production of cigars, which in peace time amounted to 8,000,000,000,

in 1916 reached the record figures of 12,000,000,000. The second possible cause of the increase in tobacco amblyopia is the inferior quality of the tobacco, the Bundesrat having sanctioned the admixture of beech and hop leaves, and lately also of lime tree, maple, chestnut, and vine leaves. The third possible cause is that the hardships, privations, and anxieties of war time have made men more susceptible to tobacco amblyopia. All Fehr's patients were men of advanced years, their ages ranging from 45 to 62; they had all lost a considerable amount of flesh, and complained of general debility. It is therefore reasonable to suppose that diminished resistance of the organism is the chief cause of the frequent occurrence of amblyopia at the present time.

In a postscript to the article, which was published on 9th September, Fehr adds that, owing to the unfavourable conditions of the tobacco market, closure of cigar shops is imminent. The possibility of developing amblyopia would therefore be confined to tobacco hoarders. J. D. ROLLESTON.

THE CLINICAL ASPECTS OF FUNCTIONAL HEMISPASM OF
(412) **THE TONGUE. (Contributo allo studio clinico degli spasmi funzionali della lingua.)** G. MINGAZZINI, *Riv. di Patol. nerv. e ment.*, 1918, xxiii., p. 125.

MINGAZZINI records two cases. In the first, which occurred in a woman aged 71, the spasm had a clonic character, and affected the tongue and muscles of the lips. The second case was that of a soldier, aged 27, who after a psychical shock developed a tonic permanent spasm of the muscles of the tongue (stylo- and hypoglossus), soft palate, and part of the masseters. A brief résumé is given of the other recorded cases of isolated or associated spasm of the tongue. J. D. ROLLESTON.

EMOTION AND COMMOTION. (Émotion et commotion.) DUPRÉ et
(413) LOGRE, *Bull. Acad. de Méd.*, 1918, lxxx., p. 124.

EMOTION and commotion, which are almost invariably associated with cranial and cerebral trauma, dominate the neuro-psychiatry of war, owing to the frequency and variety of these manifestations and the possible gravity of their immediate and late sequelæ.

COMMOTION.

In their description of commotion the writers distinguish an immediate, a recent, and a late syndrome.

A. The *immediate syndrome*, which develops immediately after the traumatism, consists in a more or less complete and prolonged loss of consciousness and more or less profound coma, resembling apoplexy.

B. The *recent syndrome* which succeeds it has a retrogressive tendency, and lasts for several weeks or months, the symptoms consisting of subjective symptoms of a psychical nature, and objective ones of a neurological nature.

(*a*) The *subjective symptoms* are headache, vertigo, sensation of dazzling, insomnia, asthenia, apathy, inertia, and a feeling of intellectual vacuity and annihilation. All the cases suffer from amnesia, which is anterograde and retro-anterograde. In predisposed subjects more serious psychical symptoms may occur, such as anxiety, restlessness of a maniacal, melancholic, or confusional type, symptoms of hebephrenia or catatonia, oneiric hallucinatory or imaginative delirium, states of confusion, with incoherent motor automatism, indefinite repetition of the same gestures and remarks, and fugues.

(*b*) *Neurological symptoms.* In mild cases, which are the most frequent, the manifestations are slight and transient, and may be classified under the following three heads:—

1. Loss of *vascular equilibrium, frequently of a unilateral distribution,* manifested by irregularity of the vaso-motor tone on the two sides, either from stimulation or inhibition. These vascular symptoms are often associated with *exaggeration of the tendon reflexes,* which is also often unilateral. In spite of the absence of any sign of a pyramidal lesion, the organic character of these vascular disturbances is shown by their hemiplegic distribution. The unilateral or hemiplegic nature of the vaso-motor symptoms is also shown by examination of the median bone reflexes (pubic, sternal, occipital, and sacral), central percussion of the bone producing either a unilateral response or one predominant on the right or left side. The hemiplegic character of the syndrome is confirmed by electro-diagnosis.

2. *Auditory symptoms.* These are of a labyrinthine character, consisting of tinnitus, auditory hyperæsthesia and abnormality of voltaic vertigo. They are frequently accompanied by rupture of the tympanum, often complicated by suppurative otitis due to secondary infection. They may be followed by vestibular neuritis and severe chronic vertigo with nystagmus (Aimé).

3. *Cerebro-spinal phenomena.* In cases of pure commotion the formula of the cerebro-spinal fluid consists in a slight excess of albumin, which appears at the end of two or three days' time and lasts for a few weeks, and an increase in the secretion of the cerebro-spinal fluid shown by hypertension and increase of glucose. The normal condition of the chlorides and of the permeability of the meninges shows the absence of any inflammatory reaction.

In cases in which commotion is associated with a more or less marked degree of cerebro-meningeal contusion, microscopical or naked eye evidence of a slight hæmorrhage in the spinal fluid is

found. In severe wounds of the skull and brain, with fracture or penetrating wound, the syndrome may be accompanied by neurological signs, which vary according to the seat, extent, and depth of the cerebral lesions.

C. The *late syndrome* is characterised in mild cases by sequelæ of an asthenic or emotional character. In severe cases, which constitute the exception, the late syndrome is characterised by its chronicity and by the appearance of an *acquired psychopathic constitution* consisting of neurasthenia and emotionalism, either of which usually predominates. Such patients are liable to develop a condition of *pathological cowardice* on return to the front when they find themselves exposed to the same danger from which they have already suffered, and present attacks of uncontrollable anxiety with tremors, shivering, pallor, sweating, tachycardia, and collapse, followed by desertion. This morbid condition is incompatible with service at the front, and at a court martial such patients should be declared irresponsible and be sent back to the base. In a severe case the late syndrome does not disappear and the morbid condition becomes chronic, and often shows a tendency to develop into dementia.

Emotion.

Unlike commotion, which is a traumatism originating from without and of a mechanical nature, the result of a physical shock or series of repeated shocks, emotion is a traumatism originating from within, and is of a psychical nature, the result of a moral shock or series of intense affective impressions. It is therefore easy to realise the diametrically opposite effect which commotion and emotion exercise on the nervous system, whereas the effect of commotion is immediately to suppress consciousness, intelligence, feeling, and will, owing to the apoplectic coma which it produces. Emotion, on the contrary, causes a maximum stimulation of psychic and motor activity, and by producing alarm, terror, and fright sets in action the defensive reactions of the instinct of preservation. The same contrast is to be seen from the anatomical standpoint. Commotion is an organic syndrome, whereas emotion is psychopathic and functional without any organic basis, in spite of the statements of Crile, who describes fine lesions in the cortex in the subjects of emotion. Emotion, especially in its recurrent form, frequently gives rise by a sort of emotional anaphylaxis to a state of acquired emotivity and nervous exhaustion manifested by continuous anxiety, incapacity for any effort, and emaciation with tachycardia, insomnia, and a grave general condition. These two etiological factors, emotion and commotion, though distinct, may

produce a series of similar clinical effects, characterised by an acquired emotional constitution or state of profound asthenia, with loss of nutrition and incapacity for any effort.

In other cases, either after a violent commotion or an intense commotion a severe psychopathic state may develop, with a tendency to dementia. J. D. ROLLESTON.

RAPID CURE OF PAIN IN CAUSALGIA OF THE MEDIAN
(414) **ASSOCIATED WITH SEVERE PARALYTIC SYMPTOMS BY LIGATURE OF THE NERVE WITH CATGUT. (Guérison rapide de la douleur dans la "causalgie" du médian avec troubles paralytiques graves par la ligature du nerf avec catgut.)** LORTAT-JACOB et E. GIROU, *Paris méd.*, 1918, ii., p. 493.

THE writers record three cases of causalgia, including one previously published, immediately cured by ligature of the median nerve with catgut. These cases confirm the hypothesis of an inflammation of the sympathetic fibres accompanying the median nerve and its nutrient vessels which are distributed to the glands and nerve terminations in the skin, rather than the hypothesis of a periarterial sympathetic neuritis. J. D. ROLLESTON.

PSYCHIATRY.

THE INCIDENCE OF TYPHOID CARRIERS IN A STATE
(415) **INSANE ASYLUM.** CHARLES KRUMWIEDE, Jun., and ELBERT M. SOMERS, *Journ. Amer. Med. Assoc.*, 1918, lxxi., p. 2131.

IN September and October 1907 the Brooklyn State Hospital had some cases of typhoid fever. Two female patients became chronic carriers. In 1912 there were a few cases of typhoid fever, and from these developed another chronic carrier. Again in 1915 a few inmates contracted the disease.

An examination in 1916 showed five chronic carriers in addition to the three already known out of a population of 516 female patients. None of the five gave a history of typhoid fever. This represents 15·5 per thousand.

The authors strongly recommend the inoculation of all inmates of insane asylums, and think that a regulation to this effect should be added to the sanitary codes of all health departments.

A. NINIAN BRUCE.

A CLINICAL SUMMARY OF 106 CASES OF MENTAL DISORDER
(416) **OF UNKNOWN ETIOLOGY ARISING IN THE FIFTH AND SIXTH DECADES.** F. T. GIBSON, *Amer. Journ. Insan.*, 1918, October, p. 221.

THE author's main conclusions are as follows:—

1. About 60 per cent. can be classified as manic-depressive or as dementia præcox.

2. Cases with agitated depression, delusions of unreality and of negation, and with katatonic features are relatively uncommon.

3. Delusions of unpleasant content are characteristic, and are almost invariably present. D. K. HENDERSON.

THE CONTENT OF THE SCHIZOPHRENIC CHARACTERISTICS
(417) **OCCURRING IN AFFECTIVE DISORDERS.** PHYLLIS GREENACRE, *Amer. Journ. Insan.*, 1918, October, p. 197.

IN certain "atypical" affective disorders schizophrenic symptoms are frequently present, and as these patients are more accessible and less deteriorated than typical cases of dementia præcox, it was thought that the schizophrenic features could be more satisfactorily studied in regard to the content and origin of these features. For this purpose a series of forty cases were studied, and the symptoms of these cases were grouped into five classes: (1) distortions and misinterpretations of actual occurrences (delusions of reference and persecution); (2) influence and passivity feelings as expressed in automatism, mind reading, electrical influence, and similar phenomena; (3) hallucinations; (4) gross distortion of body sense and body appreciation; (5) incongruous behaviour, occurring either episodically as "antics," or more persistently, but not in keeping with or apparently motivated by the prevailing affect.

Of the above characteristics the distortion of actual events is apparently the first step in the process of projection. Ideas of reference occurred in over half the cases studied. These ideas are determined not only by the constitutional sensitivity of the patient, but often are the real upshot of critical situations which involve some fear of detection. A number of illustrative cases are briefly reported. D. K. HENDERSON.

Reviews

AN INQUIRY INTO THE ANALYTICAL MECHANISM OF THE
(418) **INTERNAL EAR.** Sir JAMES WRIGHTSON, Bart., M.Inst.C.E., with an appendix on the anatomy of the parts concerned, by Arthur Keith, M.D., F.R.S. Pp. xii+254. Macmillan & Co., Ltd., London. 1918. Price 12s. 6d. net.

THE conversion of sound waves into auditory stimuli has long been clouded with mystery. Physicists have shown how sound waves can travel to the ear, but there is little exact physical or anatomical knowledge of the route and method by which these wave actions reach the auditory nerves. According to Helmholtz, the vibrations of sound through the cochlea are transmitted on the principle of resonance; but this theory has been falling lately into disfavour, being especially criticised by the anatomists, who fail to see the possibility of the basilar membrane vibrating in a liquid, and so preserved in tension and weight for a lifetime as to move in resonance to tones varying from thirty to eight thousand vibrations per second.

The solution of the problem required the skilled knowledge of some one versed in mathematics and physics, and this work describes the conclusions arrived at by the collaboration of a distinguished engineer with an anatomist. The result obtained under these conditions is thus of quite exceptional value.

In resonance it is not only necessary that the original vibrator and the resonator should have elastic properties, but the medium through which the wave forms pass must also be highly elastic. This is not the case after the motion of the air is transferred at the stapes into the liquids of the cochlea. The new medium at the minute pressures dealt with is inelastic and incompressible, and will therefore be moved instantaneously in the passages of the cochlea as each increment of pressure in the air wave acts through the ossicles upon the stapes. The liquid volume being constant and incompressible, the motion of the stapes can be accurately conveyed with the steadiness of a hydraulic machine to the nerve terminals, provided the mechanical arrangements are suitable. The problem is worked out here with great care, and forms a most important contribution to a most difficult subject.

PRESENT-DAY APPLICATIONS OF PSYCHOLOGY, with special reference to Industry, Education, and Nervous Breakdown. Third edition. C. S. MYERS, M.A., M.D., F.R.S. Pp. 48. Methuen & Co., Ltd., London. Pr. 1s. 3d. net.

(419)

ONE is glad to see that this little book, which consists of two lectures delivered at the Royal Institution of Great Britain in April 1918, is already in its third edition.

The strides which psychology has made of recent years have been brought prominently before the public in connection with war psychoses, and the welcome accorded to Dr Myers's book shows that fuller information is desired by many people.

The value of the third edition is enhanced by a short list of references to the literature of the subject.

At the present day the need of psychology is not so much further research as the popularising and the practical application of what is already known. In our asylums, in our prisons, in our factories, in our schools we are wasting money and, what is worse, wasting human life and labour in ways that might easily be prevented if we had, as Dr Myers suggests, institutes of applied psychology in each of our largest cities. It is to be expected that this book, which condenses so much information into short compass, and withal is so clearly expressed that anyone can follow its argument, will do much to arouse that enlightened sympathy on the part of the general public without which it would not be possible to develop this work on the scale that is required.

MARGARET DRUMMOND.

THEOPHRASTUS AND THE GREEK PHYSIOLOGICAL PSYCHOLOGY BEFORE ARISTOTLE. Prof. G. M. STRATTON. Pp. 227. George Allen & Unwin, Ltd., London, and the Macmillan Company, New York. Pr. 8s. 6d. net.

(420)

THEOPHRASTUS, better known for his *characters*, is richer than all other ancient sources for a knowledge of early Greek observations and theories of sense perception, of pleasure and pain, of thinking and of temperament. His writing "On the Senses" gives a vivid impression of the penetrating criticism to which these theories were subjected by the Greeks themselves.

The present volume attempts to set forth these important matters compactly by text, translation, notes, and systematic exposition, and for the first time renders available for English readers material which is indispensable for students of the history of psychology and of physiology.

The book is divided into three parts, the first dealing with Theophrastus as a psychologist of sense perception, and as a

reporter and critic of other psychologists, the second consists of the text and translation of the fragment "On the Senses," and the third comprises notes on the second part.

DREAMS AND PRIMITIVE CULTURE. A Lecture delivered in the
(421) **John Rylands Library on the 10th April 1918.** W. H. R. Rivers, M.A., M.D., F.R.S. Pp. 28. Reprinted from "The Bulletin of the John Rylands Library," 1918, iv., Feb.-July. Manchester: at the University Press. Longmans, Green & Co., London. Pr. 1s. net.

The object of this interesting essay is to make out a preliminary case for the essential similarity of two manifestations of the early stages of mental development; the dream as the expression of the infantile mentality of the individual; savage rite and custom as the expression of the primitive or infantile mentality of the race. It is shown that each feature of the psychology of the dream has a counterpart in the social behaviour of savage peoples. Dr Rivers, departing slightly from Freud's own mode of exposition, considers the dream under the heading of dramatisation, symbolism, condensation, displacement, and secondary elaboration. As in the dream, the need for expression by means of sensory imagery furnishes the chief motive for the prominence of the dramatic quality in primitive culture. Among savage and barbarous peoples the place occupied by the history and science of the civilised is taken by the myth. The myth reveals the unconscious history of the race, just as the dream reveals the unconscious history of the individual. Both show the same kind of expression in concrete image and dramatic form. Both are highly condensed products in which displacement of interest is very great. Both have undergone extensive processes of secondary elaboration, which in the case of the myth have adapted knowledge so as to bring it into a form suited to a rude grade of intelligence.

The similarity of the results arrived at by such an independent and accurate observer as Dr Rivers with those of Freud are very striking, and make this a lecture which no one interested in the subject should neglect to read.

PAPERS ON PSYCHOANALYSIS. Ernest Jones, M.D., M.R.C.P.
(422) (Lond.). Revised and enlarged edition. Pp. x+715. 1918. Baillière, Tindall & Cox, London. Pr. 21s. net.

We have already reviewed the first edition of this work (*v. Review*, 1913, xi., p. 506). It has now been thoroughly revised and extended; one chapter of the original twenty has been omitted, and twenty-one new ones have been added, eleven of which have not previously appeared in English.

The writer, who is an enthusiastic follower of Freud, presents here probably the most complete account of his views and theories which can at present be obtained. He criticises Jung as showing an increasingly evident preference for mysticism to science. The aggressiveness which characterises the writings of some of Freud's supporters is typically developed in this book. Eighteen pages are devoted to war shock and Freud's theory of the neuroses. In order to approximate the facts of war neuroses to the psychoanalytic theory, the author formulates the main principles along the following lines. The first principle in Freud's theory of neurotic symptoms is that they are of volitional origin. The second is that all neurotic symptoms are the product of an intrapsychical conflict which the person has failed satisfactorily to solve, and that they constitute a compromise-formation between two conflicting forces. The third principle is that the operative wish that leads to the creation of the neurosis is an unconscious one, and the fourth principle is that current repressed wishes cannot directly produce a neurosis, but do so only by reviving and reinforcing the wishes that have been repressed in older unresolved conflicts. The author does not agree with MacCurdy (*v. Review*, 1918, xiv., p. 135) that in war the conflict between the instinct for self-preservation and the ego-ideal is enough to lead to a neurosis, neither does he agree with the view that the so-called battle dreams represent or symbolise the desire to die so as to escape from the horrors of life. He does not think the fundamental attitude is either a fear or a desire for death. He also states, however, that he sees no reason whatever why a psychoanalysis should be undertaken in the majority of the cases, for they can be cured in much shorter ways. At the same time, in those cases where the war neurosis proper has, by association of current with older conflicts, passed over into a peace neurosis and become consolidated as such, psychoanalysis holds out the best, and sometimes the only prospect of relief.

There is a glossary and a good index.

STUDIES IN WORD-ASSOCIATION. Experiments in the diagnosis
(423) **of psychopathological conditions carried out at the psychiatric clinic of the University of Zurich.** Under the direction of C. G. JUNG, M.D., LL.D. Authorised translation by Dr M. D. Eder. Pp. ix+575. William Heinemann, Ltd., London. Pr. 25s. net.

THIS book is a translation of a series of papers on the results of the association method applied to normal and abnormal persons which appeared in the *Journal für Psychologie und Neurologie*. The experiments were carried out at the instance, and under the guidance of Dr Jung, to whom we owe the application of the

association method to *unconscious* mental processes, and the development of the theory of unconscious complexes, the results obtained by Freud's psycho-analytic technique being thus confirmed by the use of a very different method. Association is a fundamental phenomenon of psychical activity, and in the activity of association is mirrored the whole psychical essence of the past and of the present, with all their experiences and desires. It thus becomes an index of all the psychical processes which we have but to decipher in order to understand the complete man. The entire psychic mechanism can be conceivably explained solely in terms of association. The evaluation of the associations, however, becomes difficult, and a method has been introduced by which a series of test words are called out, and the uttering of the first word which "occurs" to the subject after hearing the stimulus-word forms the reaction. The difficulty was soon encountered, however, that there was no means of differentiating the associations of the abnormal from the normal, nor in fact was the variation in normal persons known. The association process also is an extremely transient and variable psychological process, and is influenced by numerous psychical events, such as attention, &c. These are all worked out here at great length with great care, in the normal, the defective, the epileptic, and the uneducated; its relation to consciousness and to psycho-analysis, and its physical accompaniments are described as well as psycho-galvanic phenomena in association experiments.

As the series of test-words used in Zurich does not altogether suit English requirements, the translator has substituted a list of words modified from Jung's list.

The book is worthy of the closest study, and marks a definite step forward in our knowledge of a subject which is becoming of rapidly increasing importance. There is a bibliography and an index.

A PLEA FOR THE INSANE. L. A. Weatherly, M.D. With a (424) Foreword by Theo. B. Hyslop, M.D. Pp. 238. Grant Richards, Limited, London. 1918. Pr. 10s. 6d. net.

This book, written by a man who has had a long and varied experience in caring for and treating the insane, is in every way timely, and can be most heartily recommended. It deals essentially with the English Lunacy Act of 1890. A frank but fair-minded criticism is made of its shortcomings, and a constructive, remedial scheme is suggested. The time has undoubtedly come when the medical profession generally and the public should be made to realise more clearly than heretofore that mental

disease is not any more a stigma than any other ailment, and it is indeed high time to get rid of such words as lunatic, mad house, and asylum. Popular lectures dealing with mental science should be given, health lectures should be given in our schools, and a National Committee of Mental Hygiene should be formed to spread abroad the facts in regard to the nature of mental disease. It is recommended that a new Act be drawn up with the help of the Board of Control and a selected number of medical superintendents and mental consultants, and that sections be introduced, allowing voluntary patients to be admitted to public institutions, and allowing early and incipient cases to be placed under treatment by notification to the Board of Control. One can only express oneself as being in hearty agreement with the author's suggestions, and can only urge their speedy adoption. His ideas, however, in regard to the size of institutions and their staffing are open to question. For instance, he states that no medical man should be appointed to any post in mental hospitals who has not had at least two years' experience in general practice. Such a plan would seem to the reviewer to be unpractical. One year in a general hospital is amply sufficient before taking up mental hospital work, and really it would seem to be more advisable for a medical man to have two years' asylum work before engaging in general practice than the other way round.

Perhaps the best chapter in the book is the one on Criminal Responsibility, in which a study of the individual rather than of the crime is urged. The MacNaghten case dictum should be obliterated from the criminal law, because it is "illogical, untrue, and unscientific."

The book is one which should make a strong appeal to the serious public.

NEUROPSYCHIATRY AND THE WAR. A bibliography with abstracts. Prepared by MABEL WEBSTER BROWN. Edited by Frankwood E. Williams. Pp. 292.

(425)

AN extensive collection of abstracts of articles dealing with neurological and psychiatric aspects of the war is here gathered together. These are arranged under the countries in the language of which the original books or articles were published, viz.:— Australian, British, Canadian, French, German, Italian, Dutch, Russian, and American literature. Many are of considerable length, and the whole collection is of much value as a work of reference, especially as there is both an index of authors and of subjects.

SHELL SHOCK and its Lessons. Prof. G. ELLIOT SMITH, M.D., F.R.S., (426) and T. H. PEAR, M.A., B.Sc. Pp. xi+135. Manchester, at the University Press, and Longmans, Green & Co., London. 1919. Cheap edition. Pr. 1s. 6d. net.

THIS book has already been reviewed (*v. Review*, p. 134), and is merely a cheaper copy of the original edition.

INTRAVENOUS INJECTION IN WOUND SHOCK. W. M. BAYLISS, (427) M.A., D.Sc., F.R.S. Pp. xii+172. 1918. Longmans, Green & Co., London. Price 9s. net.

THIS monograph consists of the Oliver-Sharpey lectures, delivered by the author before the Royal College of Physicians of London in May 1918. He considers that wound shock arises from various causes in combination, some nervous, some chemical, each associated with a reduction of arterial pressure, and all exaggerated by hæmorrhage. These result in a state of collapse, whose symptoms seem to be sufficiently accounted for by the effects of a more or less prolonged low blood pressure. Along with hæmorrhage, the most serious of these collateral causes is the absorption of toxic products from injured tissues, especially muscle. These products appear to have a dilator action on the capillaries; blood is thereby withdrawn from circulation and held up by stasis. This condition tends to become worse unless the inflow of toxic products is counteracted, hence the advantage of early operation. The toxic products already absorbed may be eliminated or destroyed if the blood pressure and volume of blood in circulation be raised by appropriate intravenous injection. If, however, the low blood pressure has lasted more than a certain time, which depends on the degree of anæmia, the nerve centres become paralysed. In its early stages this paralysis may be recovered from, if means are taken to improve the circulation as quickly as possible. After a longer period of anæmia, no recovery is possible by any method yet devised.

The easiest way to ensure an adequate supply of blood (that is, of oxygen) to the nerve centres is by the intravenous injection of a 6 per cent. solution of gum acacia in 0·9 per cent. sodium chloride, as this increases the volume of blood in circulation, and raises the arterial pressure.

The lucidity and clearness of the book make it a valuable contribution to the subject, especially as references to literature are given.

THE HEARTS OF MAN. R. M. WILSON. Pp. xx+182, with 117 figures. (428) 1918. Henry Frowde and Hodder & Stoughton. Pr. 6s. net.

DR WILSON regards the waves seen in a pulse tracing—excepting the large "pulse wave"—as representing peristaltic waves in the

vessel wall. This peristalsis of the vessel is an entirely different mechanism from the systole and diastole of the heart, and has no connection with it. The systole of the heart, by throwing blood into the arterial tree, superimposes upon the peristaltic waves in the vessel another wave motion, the pulse. During the passage of the pulse wave the peristaltic waves are momentarily held in inhibition, while, during the diastole of the heart, the peristaltic waves are momentarily more active. He also considers that the circular muscles of the vessels carry on peristalsis, and that during the period of the pulse wave, when peristalsis is momentarily inhibited, the longitudinal muscles go into contraction, producing an active inhibition of peristalsis.

Two criticisms of these views, the first by Sir James Mackenzie, and the second by Professor Bayliss, are included in the preface. There is scope for future work along the lines suggested here. The text benefits greatly from the numerous illustrations.

HUGHES' NERVES OF THE HUMAN BODY. Chas. R. Whittaker, (429) F.R.C.S. Second edition, revised and enlarged. Pp. viii+76, with 12 plates. 1918. E. & S. Livingstone, Edinburgh. Pr. 3s. 6d. net.

A short and succinct account of the various cranial, spinal, and sympathetic nerves is given here, their origins, pathways, divisions, and terminations being described as briefly as possible. The book thus is useful both to the student and to the graduate, who will find it helpful as a work of reference. The old terminology has been used throughout, and thus much confusion is avoided. Where these terms differ materially from the B.N.A., the latter has been placed in brackets. The plates add to the value of the book.

CATALOGUE OF LEWIS'S MEDICAL AND SCIENTIFIC LIBRARY, (430) **including a classified index of subjects, with the names of those authors who have treated upon them.** Second edition, revised to the end of 1917. Pp. 492. H. K. Lewis & Co., Ltd. 1918. Pr. 12s. 6d. net.

This book should prove of considerable help to all those who may wish to have a catalogue detailing the publications of any author, together with the year of publication and price. These are classified under the headings of an author's index and a subject index.

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